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The Joint Government-Industry Symposium for R&D Planning Information Management was sponsored by the Director for Research and Laboratory Management, OUSDRE and the American Defense Preparedness Association. The symposium had the objectives to provide an update on current programs in OSD and the Military Services to improve the utility of defense R&D planning information; obtain defense industry feedback on critical R&D planning information; obtain defense industry feedback on critical R&D planning information concerns and needs; and to develop a proposed plan of action to improve communication of R&D planning information between government and the defense industry. Presentations by OSD, the Military Services, and the Defense Technical Information Center covered initiatives and specific programs to improve R&D planning information utilization and availability. Workshops were held with panelists from both government and industry with discussions on improving the DoD/industry planning information exchange process, and on eliminating barriers to communication of defense R&D planning information.

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EXECUTIVE SUMMARY

INTRODUCTION

This symposium was a follow up to conferences held in March 1981 and December 1982 under the sponsorship of Dr. George Gamota and Dr. Leo Young, respectively, as Directors of Research and Laboratory Management, OUSDRE. Major items of interest leading up to this symposium and background information on the previous conferences are summarized below.

BACKGROUND

In the past industry has obtained a significant amount of defense R&D planning and technical information through the Defense Technical Information Center (DTIC), tri-service industry information centers and technical industrial liaison offices (TILO). These activities operate within DoD security guidelines and disseminate information to approved and cleared organizations with a proper need-to-know.

Over the past several years information has deteriorated in content, scope, availability and timeliness. This has been due in part to an apparent loss of interest in and support for the DTIC data bases by military laboratories and developing agencies and in part by OSD cancellation of input to the critical R&D Program Planning data base under the "paperwork reduction" act. A new R&D Program Planning data base has been developed by DTIC but its usefulness is currently limited by the lack of timely input data.

Recently, additional problems have been encountered in obtaining information as originating activities have denied or delayed release of planning and technical data and information to information centers for further release and dissemination to industry. Reasons given for curtailing information flow include concern with espionage and release of critical defense information to unauthorized persons by contractors, control of critical technology, and possible contractor use of information obtained to lobby Congress, or to create an unfair competitive advantage.

Improved input to and utilization of the DTIC data bases and the tri-service information centers and TILOs could lead to significant improvement in the overall efficiency of defense R&D, as suggested by a September 1985 DoD Inspector General audit. This audit indicated that duplicative research efforts totaling over $30 million were undertaken in DoD because of inadequate submittal of reports to the DTIC data bases by defense laboratories and failure to conduct literature searches of the DTIC data bases before awarding contracts for new research.

On the other hand, lack of timely, accurate and complete input to DTIC and the tri-service industry information centers or TILOs causes users to lose confidence in the centers and to seek information from other sources. This leads to recommendations that the centers be eliminated or input discontinued because their information is not being utilized, rather than action being taken to improve the quality of the information and its utilization.

In the current economic and political environment there are constraints on defense spending, increased demand for recompetition, and new demands for industry to assume a greater share of program risk. In such an environment defense industry needs more, not less, information to maintain the same level of risk in business and R&D program planning.

SPECIFIC ITEMS OF INTEREST FOR SYMPOSIUM DISCUSSIONS

   1. Potential dangers and problems in releasing R&D planning
      information to defense industry through existing channels.

   2. Actions which can be taken to establish and enforce more
      uniform guidelines for disseminating R&D planning
      information to industry.

   3. Actions which can be taken to assist laboratories and
      developing agencies in improving accuracy and timeliness
      of input to data bases and information centers.

   4. Actions which can be taken to improve access to and
      use of R&D planning information in data bases and
      information centers in defense R&D program planning.

PREVIOUS CONFERENCE OBJECTIVES, ISSUES AND RECOMMENDATIONS

March 1981 Conference

The objective of the March 1981 conference was to bring together a large cross section of DoD in-house and contractor scientists, engineers and technical managers to assist in planning the Defense Scientific and Technical Information Program (STIP) and develop recommendations for improvement. There were 100 participants including eight from industry.

Issue areas addressed included:

   1. Technical information program management.

   2. Technical document production and access.

   3. Computerized information systems and data bases.

   4. Information transfer services and applications.

Major recommendations (summarized):

1. Designate an OSD-level technical information focal point to coordinate mangement information reporting systems and requirements among DoD Military departments and agencies.

2. Appoint a technical information advisory council composed of DoD military department and agency technical information focal points to provide advice and guidance to the DoD focal point.

3. Develop a DoD technical information program plan to provide the personnel, financial, and facility resources required to support the Defense Scientific and Technical Information Program (STIP).

4. Designate the Defense Technical Information Center as a major program element.

5. Have the DoD focal point conduct a study of the R&D Program Planning, R&T Work Unit Information System, and IR&D management information data bases, with emphasis on improving accuracy, timeliness, and utilization.

6. Charge DTIC with the responsibility for providing a central reference service for information resources and data bases.

7. Retain and enhance DTIC's ability to maintain classified data within its data bases and provide access to such data.

8. Charge DTIC with the responsibility to work with the DoD Military departments and agencies to develop a plan to help improve the accessibility by contractors and prospective bidders to Military publications such as those that are cited in requests for proposals and bids.

December 1982 Conference

The objective of the December 1982 conference was to assess defense industry's requirements for DoD technical and management planning information. There were approximately 150 participants, including over 100 from industry.

Discussion areas included:

1. Industry perception of current and future DoD scientific and technical information programs.

2. Technical information and planning requirements of industry.

3. Improving the DoD/Industry information exchange process.

Recommendations included:

1. Replace the R&D Planning Summary (DD1634) Data Base [for which service inputs had been discontinued] with a new on-line data base.

2. Expand information sources for use by industry.

3. Improve access to information that is useful to planners, realizing that the information must be timely and complete, and contain projections for the future.

4. Ensure consistency among the Military Services and DoD components when they interpret and implement DoD policy, directives, and instructions.

5. Establish better means of communicating with industry and industry groups.

6. Improve industry's knowledge of what information is available to them, and its source.

SIGNIFICANT RESULTS FOLLOWING CONFERENCES

The March 1981 and December 1982 conferences helped identify the key issues and areas of concern in defense technical information management. These issues and concerns provided a basis for actions to improve management of technical information in DoD and the Military Services. They also pointed to a definite need to improve the exchange of technical information between government and defense industry.

A mechanism for addressing these issues, concerns, and needs was established following the December 1982 conference with the formation of an Information for Industry Committee in OSD with representatives from the Military Services and OSD. A counterpart Industry Advisory Group was also formed. Representatives from eight different defense contractors have served on the group.

The Information for Industry Committee and Industry Advisory Group met once a quarter during 1983, 1984 and 1985. Recommendations developed in these meetings were influential in bringing several problems involving release of R&D planning information to industry to the attention of key defense managers for resolution.

FORMATION OF NEW ADPA R&D PLANNING INFORMATION MANAGEMENT SECTION

In June 1983, the American Defense Preparedness Association became interested in this area of industry concern. It was recognized that a need existed for a government/industry forum to address a number of questions related to defense R&D planning information management that were not being addressed in other industry associations or in the various conferences and symposia being conducted by ADPA and other associations.

Steps were initiated to find the right home for the R&D planning information management activity in the Association. It was decided to place the activity initially under the Technical Documentation Division. In April 1985 it was proposed by the members of the OSD Information for Industry Committee and the Industry Advisory Group that they become the initial steering committee for a new section within the Technical Documentation Division. This section would be called the R&D Planning Information Management Section. The proposal was approved by ADPA and the section was formally organized in September 1985.

One of the first major activities of the new R&D Planning Information Management Section was to work with OUSDRE in planning and organizing this January 1986 symposium.

Future activities of the R&D Planning Information Management Section will include workshops at the annual meeting of the Technical Documentation Division and formation of joint government/industry task forces to work on ways to improve the input, processing, dissemination and use of defense R&D planning information throughout the US defense community.

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OPENING REMARKS

Mr. John W. Saunders

To start off, I'd like to introduce Dr. Leo Young. He's currently the Director for Research and Laboratory Management, Office of the Under Secretary of Defense for Research and Engineering. Dr. Young got his Ph.D. in Electrical Engineering from the Johns Hopkins University. He has authored, coauthored, or edited 14 books, 20 patents, and more than 100 papers. Dr. Young.

Dr. Leo Young

Thank you, John. I want to thank the ADPA for hosting this meeting. The ADPA has been very helpful to us in DoD, and the new committee that's been formed, which kicked its existence off by this meeting, is going to be very useful to both industry and to us in DoD. In fact, the first symposium that we had was held back in March, 1981, and it was sponsored, like this one, by the Deputy Under Secretary of Defense for Research and Advanced Technology, who is my boss. The primary purpose of that meeting back in 1981 was the revitalization of the Defense Science and Technical Information Program, STIP. At that time we had 90 participants representing a pretty broad cross-section of people, but heavily oriented towards DoD people and not enough from the outside. The major issues addressed at that symposium were technical information program management, technical document production and access, computerized information systems and data bases, and information transfer services and applications. The output of the conference was 14 recommendations, and I have them on a vu-graph; I'll run through them very, very quickly.

Most of these 14 recommendations, we have largely met and satisfied, although I'm not satisfied with the progress that we've made. I think we have a long way to go yet, but we have made quite a bit of progress since 1981. The first one says that we should appoint a permanent DoD technical information focal point. We did that. I got together at that time with General Babers' predecessor at DLA, Admiral Grinstead, and as a result, we have an individual, Frank Sobieszczyk, who is the full-time person in OSD handling technical information.

We established an advisory council, which is the second recommendation. We have a steering committee, under which there are three committees: one dealing with domestic technology transfer; one dealing with information for industry; and one dealing with the operations of DTIC itself.

One recommendation dealt with a study that should be made of the R&D program planning. That study was made.

We reviewed and analyzed the Information Analysis Centers, the IACs. We had several meetings on those. We find that the IACs

have become very popular and there are a lot of requests to form new ones, and we're forming new IACs at the rate of about one per year these days. The problem is getting the funding for them.

The next point -- providing input into DTIC, not on paper but in electronic form. We right now have an experiment that we just started with one major DoD contractor to provide IR&D data in electronic form.

The last recommendation, we put together the data base of data bases. That was put together so we have a comprehensive road map of where you need to go for information.

There are several more recommendations here. Let me deal with the last one -- to retain and enhance DTIC's ability to maintain classified data. That has been improved. There has been a lot of activity, as you know, in connection with technology export and the control of classified and export controlled data. We have made a great deal of headway in that area and systematized the way we handle that information. A number of DoD Directives have come out; we have standard markings for documents. This has helped greatly to provide the information when requests come in. So a document is clearly marked who is to be sent to, instead of having to go back to the author and find out what to do with it.

DTIC has been extremely helpful -- I would almost say essential -- in the running of our SBIR program, the Small Business Innovation Research program. For example, this year the brochure that went out had 760 "mini" RFQs in it, and we get thousands of requests from contractors, small companies, who are not familiar with DoD, and DTIC has pre-packaged one package for every one of those 760 little RFQs. When a request comes in, they automatically send out a package so that the contractor doesn't have to waste a lot of time finding out what it's all about.

So a great deal has happened in these last three or four years. We've faced a number of problems, perhaps the biggest of which was maintaining the budget of DTIC. In the current climate, with GRH (Gramm-Rudman-Hollings), that pressure on the budget is going to increase and we're going to have a hard time maintaining and modernizing the equipment that we have at DTIC, and we're going to have to do a lot of educating people in Congress and elsewhere of the vital importance that information is and the amount of money it saves when it comes to developing new systems and doing R&D.

There was a second conference in December, 1982 -- a follow-up conference to the one in March, 1981. It was again sponsored by the Deputy Under Secretary of Defense for Research and Engineering, R&AT. This time over a hundred people from industry alone turned up. It was a larger conference, and we had a very good give-and-take discussion. A lot of people contributed; it's hard for me to mention any particular names, but perhaps I'll mention two in particular: Earnest Deadwyler and Fred Lewis. There were many others, a lot of people who were very, very helpful in organizing these

conferences. The general areas that we discussed: industry percep-
tion of current and future DoD scientific and technical information
programs; technical and planning information requirements of indus-
try; and improving the DoD industry exchange process. The problem
of providing planning information to industry has been quite contro-
versial and difficult, and I believe Colonel Carter, when he speaks,
will address it a little bit. The problem with that is that much of
the planning information is informal and internal to DoD, and the
question is at what point is it suitable to pass on to industry; at
what point is it still internal and liable to get changed at very
short notice? We're trying to standardize on that, and the tool that
will be used is the PEDS, the Program Element Descriptive Summaries,
that go to Congress. It's our hope to standardize on that one docu-
ment, make it as complete as possible, as accurate as possible, and
provide it as early as possible to industry.

Another problem that we've had to face is the CICA, the Competi-
tion in Contracting Act, which was passed by Congress. Whenever
people compete, they will tend to keep information to themselves.
The problem we have is on the one hand, fostering and maintaining
competition; on the other hand, sharing the information. To some ex-
tent, these are contradictory and we have to be very careful how we
do the thing.

I mentioned budget limitations which are going to continue to
be a problem. There have been tighter controls on information be-
cause of the realization that the Soviets use us, to a large extent,
to do their R&D for them, and so we are not interested in helping
them on that score. The question is how can we keep back informa-
tion, critical military technology, from the Soviets and at the same
time facilitate the sharing of that information amongst ourselves.
Those two are very difficult to accommodate at the same time. You
can think of it conceptually as erecting high barriers around us
and our friends, making it as easy as possible for information to
flow within those high barriers, but using those high barriers to
keep those we want to keep from that information on the outside.
It's easier said than done, but we're beginning to institutionalize
that process. Unfortunately, when you institutionalize it tends to
become bureaucratic, and the difficulty is how to streamline it and
at the same time make it effective with not too much bureaucracy
in the process.

I think we've done quite well in that process, even though it's
been quite difficult to do that. We started talking to industry
about three or four years ago on an informal basis. We had many
discussions which culminated, really, in this conference and the
formation by the ADPA of this committee. ADPA has a Technical
Documentation Division which has taken over the R&D Planning In-
formation Management Section, which is where the new committee fits
in. They've been planning this symposium and this is the way to
kick off that committee. We look forward to interacting with them
and with the people who have helped get it started. General Miley
and others have been extremely helpful to us.

One of the purposes of this symposium is to provide an opportunity to bring you up to date on what's happened, and we're going to have a number of well-informed speakers who will lay out for you what's been going on. We'd like to have a frank appraisal; we'd like to get your feelings and everybody's feelings on how things are going, and talk about some of the environmental factors that affect this interchange, this flow of information. We're going to have some panel discussions tomorrow morning, followed by a summing up tomorrow afternoon. We're going to have a number of speakers who will detail things laid out for you, and we'd like to get your interactions and comments. There'll be two working groups tomorrow after the panel discussions. One group will focus on ways in which the barriers to communicating defense and planning R&D information can be eliminated or reduced, and still meet the requirements of national security. The other will discuss ways in which the information available can be used more effectively in both government and industry to aid in improving the overall effectiveness of our defense R&D programs.

A key point I want to make is that information is a living resource. It changes all the time. It has to be up to date. It has to be prompt, it has to be accurate, and perhaps most of all it has to be complete. It has to be complete in the preparation when the information goes into DTIC, into the data bases. It has to be from there promptly transmitted to the information centers, the . . . and the terminals that exist in many companies. And it has to be readily accessible to the users. That means that we have to disseminate information on how to use that information. In other words, we have to tell people where the centers are, what they can do, and maybe also what they cannot do so that everybody knows what to expect and where to go. We need to inform and even train our planners and managers in how to make effective use of the information. If you people provide the information but for some reason it is not used, it just lies there and doesn't help anyone. Therefore, we need an awareness and an understanding of the entire process by managers all the way up from the bottom to the top.

I hope that the sessions today and tomorrow will provide some insights and understanding so we can take this at least one step further. This is a real challenge to all of us and I hope we can generate from the conference plans on how to improve this exchange of information.

To set the stage for the symposium, we have two speakers: one from inside DoD; one from outside DoD, but both of whom are very well informed about both communities, inside and outside. The first speaker is Lt. General Donald Babers, who heads the Defense Logistics Agency. I will introduce him now and then after he has spoken I will introduce Norm Augustine, who is the second speaker.

Let me tell you a little bit about Don Babers. He has had a very distinguished career in the Army, and was appointed to his

priorities, to say, "You bet! I'll be glad to get up there." I don't want to make the headlines!

You've heard it. Dr. Hicks, and before him Dr. Wade, and before him Dr. DeLauer, is the one guy in OSD responsible for technical information, for the repository located at Cameron Station. As the Director of DLA, I'm responsible for lights and water administration, making sure that I submit the budget to support the initiatives that the Administrator, Mr. Kurt Molholm, would put forward; to ensure that if something is bothering him and he can't get an audience up the pike, that I lend my office and the name of my office to help work those issues. In that regard I've had several meetings over the past year with Mr. Molholm and Leo Young.

To understand the environment we're working in, it's very turbulent. Key people change all the time, both those wearing uniforms and those in the Secretariats, the appointed officials. I just went through the list of those who had changed in the position of the Under Secretary of Defense, RDT&E. And every time those people come in, first they have to start out by learning the system of which they have to become a part. They have to learn the major weapons systems that are moving towards DSARCs and ASARCs and production decisions or where to kill programs and whether or not to permit the initiation of others. In addition to those things which they schedule, they've got to respond to headlines that appear in the paper like you and I do, and inquiries from Congress, and they've got to go forward and support the budget. All of those are important issues. Technical information is an important issue. The investment of the technical information that finds itself deposited in DTIC is important. But in the list of priorities, it's hard, on a self-initiated basis, to say I'm going to take a look and I'm going to spend a day or an hour on technical information and see the extent to which we're paying close attention to that. And I suspect if you go back and reflect on your firms, those which you represent and those of you in the military, if you reflect on what your bosses do you'll find out that their calendar and their agenda is very much like the one I described for the hierarchy in the Defense Department.

A big part of my concern in the Defense Logistics Agency is, again, with changing leadership all the time, whether uniformed or Civil Service, and dealing with an industry where there's a frequent turnover of presidents and vice presidents and the people with whom we interface, is reinventing the wheel. Many of the things we do have a common base, and if one of these 26 agencies that I've got in the field out there has a problem, chances are that some other of the 26 have a problem just like that. Because people are ingenious and have a lot of imagination -- some show greater imagination than the others -- chances are if more than one of those activities have a particular problem, somebody has figured out how to solve that. So cross-leveling of good ideas, of solutions to problems, whether they be problems dealing with people or technical problems dealing with matters such as you work with day to day, somebody has figured out how to solve that problem and my challenge as a commander, your

challenge in your position, is how do you take advantage of the good ideas of the work that's already been done with others, to see that you don't have to reinvent the wheel and expend valuable resources, whether people or dollars, in solving that problem.

I'll go back to a personal experience for the next few minutes, going back to the late 50s, when I was coming off my combat arm detail as an Ordnance officer in the Army. Ordnance officers at that time were expected to have a depth of knowledge in a weapon system or in a commodity, and they were supposed to know something about the technical aspects, whether it was research and development or procurement -- industrial management, if you will. I can reflect, as I was going through the three assignments I had during that three-year period, one in engineering and one in procurement and one in the field service, sitting around with a bunch of other lieutenants whose backgrounds were much like mine. As we moved around, all those engineers that we worked with, playing "what if," wouldn't it be nice, we said, if you could just dial up a number and state what your problem was, and let them tell you where to go to get the answer. Wouldn't that be nice if there was such a repository? Wouldn't it be nice if you could get your hands on quickly, had access to a library that included solutions to problems, results of technical studies, work already done so that you wouldn't have to initiate another program? All of the centers in the Tank Automotive Command where I was had that center, a technical library, where those reports were all recorded and you could go in and find those, but how in the world, back in 1958, if there was a problem that I had that the solution might find itself in some work done by a missile command, how was that made available to me? A part of the education process said that there's a repository in Washington someplace that had all that, even going back to that time in 1950. In fact, DTIC has been there performing essentially the same mission since 1948. I didn't know that. Of course, I was new in the business, but some of the colonels I worked with didn't know that, either. And years later, as I dug into it, some of the lab directors weren't making full use of that.

I'll go back to 1974. I was serving, at that time, as a commander of a troop unit at Fort Bragg, and was brought back to Detroit to manage a tank program. We needed tanks because of the Arab-Israeli conflict. We needed to build them faster and we needed to take the old M-48 tanks and see what could be done to up-gun them. Instead of a 90mm gun, we needed something that had a 105mm gun, and we needed a diesel engine as opposed to that gasoline engine. So a program was established to accelerate production of new M-60 tanks and to get a conversion program going, and there were about $25 million appropriated and set aside to take 10 or 11 M-48 tanks and put a 105mm gun in, make the revisions to the fire control inside, a diesel engine, and get it out on the tracks and run it around. As part of my job as a program manager at that time, I had to determine what we could do to compress the schedule, and there was about 11 months set aside in a program that had already been presented to Congress to do just exactly that. Test 11 vehicles to

establish feasibility. Reflecting back to that time, I was a lieutenant playing "what-if" with a bunch of other lieutenants who didn't know much. I asked the question of the lab director, Ernie Petrick, I wonder if that outfit back in Washington would have any records of any tests of this type before. I went back -- and that inquiry we made is still on file -- and the information they gave us was that in fact, the Chief of Ordnance back in the 50s had done exactly what was being proposed. They had taken a 105mm gun, they had put a diesel engine in it, and they'd run it around and had satisfied themselves of the feasibility and there was no risk. So with an acceptable level of risk, we were able to support before Congress and before the appointed officials that we really didn't have to start from scratch doing that, that we could accelerate it.

That's a personal experience. Now, some of you people deal in more sexy things than conversion of old tanks into more potent tanks like that.

Evidence suggests that the opportunities that existed then exist today, and the results of the Grace Commission, which said that $35 to $40 billion could be saved in R&D funds if we'd take full use of DTIC and the data that is residing there. It was the considered opinion that that figure was overstated considerably; nonetheless, there was agreement within OSD that yes, we could save money. Mr. Joe Sherickson and his IGs in his report that came out late last summer said you can save up to $30 million on just 360 contracts. We read all the time in the paper about fraud, waste, and abuse. Although we get tired of it, it brings before us that we do have some pretty significant problems. Go back to 1978-1979 when the political campaign started, and there was that guy from Califor- nia who ran against the bureaucracy like most people do, and he said, "There's fraud, waste, and abuse in that government and I can go in, if I'm President, and straighten up that situation. I can save the taxpayers billions of dollars." Being a member of that bureaucracy, I was chagrined at that. I didn't believe it was as bad as he had said it was. I think it was an exaggeration, but efforts ongoing as a follow-up in the last five years have shown that those of us in the bureaucracy have not been the best possible stewards of the taxpayers' dollars. We did find instances of fraud, waste, and abuse. We did find instances of mismanagement at greater levels than what we were finding before. We found out that we weren't taking full advantage of competitive opportunities of reduc- ing prices of goods we buy. We read about the horror stories of paying too much for hammers and too much for ashtrays and couches and toilet seats. We've not read a headline on technical data yet, but if you go back and you find the Grace Commission Report, and if you believe what the Inspector General said, then you've got to say that submerged below the surface someplace is an opportunity for us in the government and those of you in industry to do things more efficiently than we've been doing them in the past.

Take DTIC -- take the usage factor against any of those files and you find out that it's relatively stable over the past several

years in spite of the fact that the last several years we've spent
considerably more dollars in research than before.

I had a visit. Bill Eicher came in representing ADPA. Fred
Lewis and Ernie Deadwyler came with him, and there was one other
gentleman. They came and sat on my couch about 9 to 10 months ago
and expressed their concern that we didn't have the friendliest type
of data base available to them, that it was incomplete. They said,
"What you have there now is of great use to us, but it could be so
much better." One of those gentlemen, and I'll let him speak for
himself, said that through using just what was available he could
prove that his firm had saved its own firm in excess of a million
dollars over the past 12 months by using the data available in those
files. He said, "One of the things that you could do, General Babers,
to save even more money would be to give a greater number of us
access to the classified files, the secret files, available in cer-
tain of those files." So I went out to the National Security Agency
and said, "We need some more of those KG-84s, communications security
devices," and by golly, they said, "If you want them, you'll get
them. We'll find a way that we can get them to you earlier than
what your schedule calls for, and we'll make arrangements where those
people in industry who have the appropriate clearance can procure
those directly from a couple of firms making that device." They're
available now and we were able to do that.

Another part of that discussion centered on the program summary
file. I was told by that distinguished group that came in, "General
Babers, if we could just have the program summary file it would
assist us in planning and we wouldn't have to travel all the way
from California or Texas or Orlando, Florida, and spend so much
time walking the halls of Congress to find out what the Defense De-
partment is planning to do the next year or the next two years and
more. We know that you have the program summary file that's supposed
to contain that data. Why don't you put it in there?" Well, in
looking to that I find that I understand your frustration. We had
a form that had to be filled out by government laboratories con-
tractors. It was a special form that served no other purpose but to
feed that file, and that was an onerous task and there was no big
motivation. There was no policeman to see that the file was built.
But I committed myself to get another form that had been approved,
the RD-5. That doesn't have to mean anything to you, but we went to
work and in about four or five months, lo and behold, we got the
program summary file built using the data from that particular form.
I was so proud. That was October of this past year, and I called
Bill and said, "Put one up beside Babers. He got that file online."
Lo and behold, come December, a decision was made that we could
save money by eliminating unnecessary forms. The RD-5 form was
eliminated. It no longer could serve as an input to us, so we were
starved and we had no source from which we could build a file. So
what you wanted so badly disappeared. But an option was given. It
doesn't help you today, but we think it will help you tomorrow be-
cause the program summary form that accompanies the President's
budget, the PED, will now be the source of our data. We're still

trying to figure out, within wonderful DTIC (Kurt Molholm has that responsibility), how to build that file in a fashion that you people will be able to use it any more efficiently than you would going to a library and thumbing through a bunch of pages. We expect to have the code broken on how to do that by July. That's our commitment. That doesn't help you today. I understand your frustration.

Why is it if all that is available, if you can save all that money, why is it that it's taken so long to solve the problem? I'll go back to the opening statement that I made. On the list of very important things that very important people work on that control budgets and can direct Military Services to do things, technical data management has not been that high on the agenda. People have been working 70-hour or 80-hour weeks, but there just hasn't been time to spend on the technical data. I would submit that within industry if it had been sufficiently important to your bosses, to the presidents of the firms you represent and to the CEOs, we would have heard an outcry that would have gotten the attention of those in the government, those in OSD, required to make the magic happen and to break the code.

I was pleasantly surprised that we'd get a man as important, serving in as important a position as Mr. Augustine to be here today and I think that's a good sign. I was pleased that General Miley, the head of ADPA, could be here today. That's a good sign. But unless there can be a strategy developed here that will surface this as being significantly more important than we've now portrayed it as being, this accumulation and processing of technical information, then I would submit that we're going to make very little progress. It would seem to me that the challenge of this conference is to come up with a strategy that will heighten the awareness of the leadership, both within the Defense Department and within the firms which you represent, such that it will bubble this issue to the top of the table.

Security of technical information -- that's been a big concern and that hurts. But I have yet to find evidence surface to my level of any compromise of data that has escaped to the wrong nation as a result of that. I have yet to have brought to my attention the compromise of information that you would put in on your independent research and development. We're working those issues.

Funds have been made available over the last couple of years to upgrade the equipment located in DTIC -- almost $2 million since I've been here and we're going to continue to push that. The security devices that are needed to have full access for increased numbers of you to the classified files are more readily available. So it's not all gloom. But the bottom line is things could be a lot better, but we have to get the attention of some people not represented here today.

Thank you for including me. Have a good conference.

Dr. Young

I understand Norm Augustine is on his way here. He isn't due to be on until 10 o'clock, so I thought I would just say a few words that I might have said if I thought I had the time earlier on.

Let me say a few words about my office in particular and how the whole thing fits together. In the DoD, of course, we have one Secretary of Defense, Caspar Weinberger, and many components that report to him, the Army, Navy, Air Force being the three biggest. Then there are a number of agencies, of which the Defense Logistics Agency is one. The Secretary of Defense has an office that helps him work with these people. It's a big office with about 4,000 people in it, and I'm one of those 4,000. What I'd like to do is give you some perspective of how the information handling fits into that process.

In the Office of the Secretary of Defense, the organization is quite structured. The two most senior people after Secretary Weinberger and Deputy Secretary Taft are called Under Secretaries, one of whom is Donald Hicks, the Under Secretary of Defense for Research and Engineering, and the other is Fred Iklé, the Under Secretary of Defense for Policy. Hicks is in charge of all the technical R&D-type activity. Under him there are a number of Deputy Under Secretaries, one of whom is my boss, the Deputy Under Secretary of Defense for Research and Advanced Technology, who has a number of assignments. But basically it starts with what we call the Science and Technology Program which, in terms of budget categories, dollar-wise, is most of the 6.1, 6.2, and 6.3A categories. So he has all the most basic R&D program elements. Then there are other Deputy Under Secretaries who deal with particular warfare areas -- tactical warfare, strategic nuclear theater forces, and so on.

In the office of the Deputy Under Secretary for Research and Advanced Technology, there are five directors, of whom I am one. I'm the one who has the most basic of that basic end of the R&D. My main responsibility is the 6.1 program, the basic research program dealing with the universities. But in addition to that, since the other four directors deal with particular technologies and I'm the only one of the five who does not deal with any one technology, I find myself getting a lot of assignments which are across-the-board, of which technical information in general is one. So I have an opportunity of fitting together the pieces which include not only the basic research program with the universities, but the independent R&D program with industry, the SBIR program (the Small Business Innovation Research program), and generally the laboratory management. In other words, DoD has 73 laboratories that do a great deal of R&D in-house. So when you look at the total picture, I'm closely involved with the universities, the large companies through IR&D, the small companies through SBIR, and the laboratories through laboratory management. We have something called the Laboratory Management Task Force, which

the Deputy Under Secretary chairs, and which I run for him. So
this gives me an opportunity of looking at all the main performers
of R&D -- universities, large companies, small companies, and in-
house laboratories. I don't get involved in the large programs,
the 6.2, 6.3, 6.4 programs, except peripherally, but I do get in-
volved with all the performers and as a result, the information ex-
change that takes place, the information flow, from the laboratories
to industry and back and forth, and universities to small companies,
large companies -- I am very much concerned with that.

So one of the assignments that I have is called the Science and
Technical Information Program. The people who have been helping me
with that are Frank Sobieszczyk and Walt Blados. Walt actually works
for the Air Force and he works part-time in my office, and he has
been very helpful in helping me structure that program. Frank works
for DLA and is full-time in my office.

The main constituent of that Science and Technical Information
Program is domestic technology transfer, and that in turn is in two
parts, as I see it. One part is transferring the results of R&D
already done. DoD pays for a great deal of R&D in-house and on con-
tract. The results of that R&D can save a lot of time and money, as
General Babers pointed out, and we are very concerned that that in-
formation is available promptly, accurately, and as quickly as pos-
sible. The other kind of information, which is harder to get out,
is the planning information. The result of R&D is information on
work already done. Planning information has to do with what is DoD
thinking about; what are we planning to do next year, the year after
that, five years from now. That kind of information is much more
jealously guarded than the results of R&D because the planning in-
formation can change; it's a little uncertain what may happen; it
involves budgets, which can change. So one doesn't want to release
that kind of information until one is reasonably sure about what's
going to happen. In the current climate, with Congress reviewing
budgets and cutting -- cutting unpredictably very often -- people
are reluctant to release that kind of information. This is where we
get into some very interesting discussions as to at what point and
how to release that information.

Another aspect of information is export control, because just
as we want to get this information out as efficiently and as quickly
as possible to industry, to our own people, and to our allies, by
the same token we want to hold it back because we are a free society
and it's very easy to access to that kind of information. We want
to do better about withholding it from those who can use it against
us. Why should they have easy access to that information? Unfor-
tunately, when you do the one you tend to hurt the other. So this
is a real balancing act -- how to improve the transfer of informa-
tion to industry and make it more easily available, and hold it back
by certain controls.

As an example of this, we have instituted markings of documents.
The DTIC documents are now clearly marked to whom it can be released
so that somebody who may not understand technology at all who gets

a request, gets the report off the shelf, doesn't have to go back to the originating organization and waste a lot of time before it is passed on. This is the kind of thing we've been doing.

I interact with DLA, as I pointed out, through DTIC. DTIC is the repository of information. It's a documentation center. But it's much more than a documentation center. It's the Defense Technical Information Center. It provides a service. It's much more than just taking a report off the shelf, and we've been trying to improve that service with your help. We find, as General Babers pointed out, people often don't appreciate what that can do for you, and we must generate more appreciation for it amongst top-level executives in Congress and also amongst top-level people in DoD (OSD in particular), and I feel I have not done as well as I might have done at getting that interest generated. I've tried and we will keep trying and we will undoubtedly succeed in the end. But people like you have to come and help us to do that.

Having done a little bit of time filling and Norm Augustine is still not here, let me suggest that you may want to have a little question-and-answer session. It's a little early, but perhaps you can give us some comments right here and now from the audience.

Question

You mentioned earlier an experimental program on submission of IR&D data in electronic form. Who is the contractor on that?

Dr. Young

We're working with TRW on that. TRW volunteered to put the information in electronic form into DTIC, and we're going to try and do this. The problem, of course, is one of standardization. It's easy enough to put it in electronic form, and everybody could do that for us, but if the ways in which this is being done were to be inconsistent, we would have a problem. So we're trying this one first and hopefully we will standardize on something. Hopefully, one day it will go that much faster.

I see Norm Augustine just walked in, and I invite him to sit down and listen about himself. You're not late; we're early.

Norm Augustine has served on both sides -- both in industry and in the Defense Department. I'm going to try and synopsize a rather long biography I have here in front of me. There's a lot to tell you about him. He majored in Aeronautical Engineering from Princeton University, and has also been taking courses at a number of other universities, Columbia and UCLA amongst them. He served in the Defense Department; some 12 or 13 years ago, in 1973, he was confirmed by the Senate as Assistant Secretary of the Army for R&D. Then in 1975, he was promoted to Under Secretary of the Army. In 1977, he joined the Martin Marietta Corporation and he's been with them ever since. Norm Augustine is Chairman of the NASA Space Systems and Technology Advisory Committee, and a member of the NASA

Advisory Council. He has served as president of the 35,000-member
American Institute of Aeronautics and Astronautics, the AIAA, and
was president of the 160,000-member Association of the United States
Army, and he's been chairman of or active in many other associations
to do with technology or defense. He has also worked very closely
with many universities. He has served on Boards of Directors of
local institutions in Colorado and other places, and in particular,
as far as universities are concerned, he has chaired advisory councils
for Princeton University, American University here in Washington,
the MIT Lincoln Laboratory, and he's also served on boards of a num-
ber of other major universities -- Texas A&M, Florida State, Univer-
sity of Colorado, Georgia Tech, Duke University, and probably others,
too. Also the Defense Systems Management College, which is one of
the DoD universities, you might say, and he's also an honorary member
of the faculty of the Industrial College of the Armed Forces. He has
been editor or associate editor of a number of journals, including
the Defense Systems Management Review, or served on editorial boards
of Astronautics and Aeronautics, and the Journal of Defense Research,
which is a classified in-house journal of the Defense Department.
He has three times been awarded the Department of Defense's highest
civilian decoration, the Distinguished Service Medal, and has also
received the Defense Meritorious Service Medal, the Army Distinguished
Service Medal, Air Force Exceptional Service Medal, and so on. He is
a recipient of the American Astronautical Society's Military Astro-
nautics Trophy, and the ADPA's Gold Medal and Knowles Award. In
addition to these very technologically-oriented activities, he has
also found time to chair a national committee of the Boy Scouts of
America, and held leadership positions in the YMCA. He is author of
a well-known book entitled, "Augustine's Laws," and holds a copy-
right on a slide rule for baseball managers.

    With that, I give you Norm Augustine.

Mr. Norman R. Augustine

    Good morning. I particularly appreciate the plug for the book.
Those of you who bought a copy, I could point out, are members of a
very select, small group so you can be proud.

    It is good to be here this morning. The subject you deal with
is an important one, indeed, and unfortunately a bit contentious,
but perhaps that has some benefit at the same time. I was happy to
see the good General with whom I had the privilege of serving for a
number of years, but frankly, my opening remarks were aimed at Sec-
retary Hicks and I find myself in a bit of a spot. I was going to
point out that Washington, D.C., has been described as a diamond-
shaped city surrounded on all four sides by reality, and I thought
it was in keeping with that that Secretary Hicks was going to pre-
sent the government's point of view of information management; I
have spent probably 20 times as much time in government as he, and
I am supposed to speak on the industry viewpoint of information man-
agement, and Don has spent a lot more time in industry than I. So

it ties in with the whole approach to things in Washington that that
should be the case. But since he isn't here, I can't say any of
that in my introduction, so I won't.

It is true that unfortunately, we're in a time that communica-
tions between the government and industry are probably at their nadir,
at least in my 27 years in this field. That's a disappointment and I
think it's a disservice in many respects. I think it speaks highly
of OSD and the Association and many others that have meetings such
as this to try to help turn that around, because I think it is a
disservice to the national defense effort. I don't think any of us
planned it that way, but I suspect many of us would agree that that
is the case and it's worth changing.

As we watch those in government, and those in government watch
those of us in industry and try to help each other with our questions
and our problems, I'm reminded of the story of the fellow who made
his very first parachute jump. He was a sports parachutist, and as
he made his jump he pulled his main chute and nothing happened. He
quickly pulled his reserve chute, and still nothing. As he descended
closer to the ground, to his amazement, he saw someone flying past
him going in the opposite direction. He yelled at this individual,
"Say, do you know anything about parachutes?" A voice yelled back,
"No. Do you know anything about gas stoves?" Indeed, I think that
does somewhat graphically illustrate the situation that those of us
from government and industry find outselves in as we pass each other
seeking help and information.

Although I'm probably the least expert in this entire room to
deal with the subject of information management, I nonetheless proba-
bly am one of the very few people in this entire room who has ever
spent 25 years looking for a single piece of data. I actually did
that. I happen to be a little interested in geneology and was try-
ing to trace my family tree, and if you'll pardon me for telling this
personal story, I think it is relevant to a broader problem that we
collectively face. Shortly after I got out of college, I tried to
trace our family tree. I very quickly got back to the point that I
knew the family came from Germany, but I didn't know what town. I
actually spent 25 years in my spare moments trying to find out what
town in Germany they came from. Of course, the dilemma was I didn't
know whether the piece of data was available or not, but in fact it
was. It was there the entire 25 years. As it happens, I found it
about a year ago, and a few months ago had the good fortune to visit
a small town in Germany where my family did come from. Quickly,
within a matter of months, was able to go from 1834 to 1590. I just
lacked that one little piece of information. And it was there the
whole time. It was there to be had, but it was just that I didn't
know where to find it. I think of the hours spent looking and I
also think of the fact that many times I began to think that the
data wasn't there.

I'm sure that's true of people who deal in planning information and technical research information, information on systems, on requirements, operational needs, and what have you. Many times the information is there, but the person who needs it, for whatever reason, can't get access to it, and I'd like to talk a little bit about that later on.

Just as a personal note on that, in this little farming town down in the Black Forest, they were very conscious of strangers walking through the town and an elderly lady stopped me as soon as I came into town, wondering why I was there. I told her, and it turned out that her name was Augustine, so that one event made that whole 25 years worth it.

There's another vignette that comes to my mind relevant to the subject. It relates to Theodore Von Carman, certainly one of, if not the greatest, aerodynamicists who ever lived. One time I claimed I was an aerodynamicist before I got into the information systems business. He wrote a paper on the aerodynamics of very slender bodies -- long, thin bodies. The name that was given to that catalogue of materials was called Slender Body Theory. It was filed in the library at the university, and some years later he went back to get a copy of it because his file copy had been lost, and they couldn't find it in the library. Finally, after an exhaustive search, they found it in the medical section filed under "Malnutrition; Slender Body Theory." I can see that you relate to that!

My own first experience that has affected my entire career in this area was on my first job. The first job I had was working at Douglas Aircraft in California. A few of you in the audience might empathize with this experience from a lot of years ago. In those days, in the missile business, which I happened to have been in, you worked in what was the top half of an old airplane hangar. They used to put decks in and they put the engineers in the top half because in the missile business you didn't need the room for the tails in the hangar. We worked in this huge place and literally, there were acres of engineers. I'll bet there were 2,000 engineers, all within sight of each other. Not a partition anywhere. Our main instruments that we had to work with were a slide rule, a telephone, and a pencil. And it wasn't that long ago, either. Birds used to fly through this huge room and we all had huge drawings we did on vellum with ink. Every now and then you'd hear an anguished scream from some soul who had been working for a month on his drawing! But I was in a research group at that time and I had an idea for calculating the flow behind blunt bodies. At the time I was really proud of it, I remember. Even looking back on it, it was kind of an ingenious idea, and I worked on it for about three months. There were about 20 of us in this group. It was during a summer, and at the end of the summer there was a professor who was about 10 desks from me from the University of Illinois. He was going back to the university and before he left I thought I'd show him what I was doing and get his comments on it. When I showed it to him, sitting right on his desk, was the exact same thing that he was sitting there

working on. The identical thing. He had had the same idea. Of course, we were both shocked that here we were, 20 feet from each other, repeating what the other was doing and we'd been doing that for three months. At that time, I concluded that before I ever did any more research I'd spend a lot of time reading everything that was ever written on the subject. Well, I soon discovered that if I did that, not only would I never do any research but I would not be likely to be a very great contributor to the world because there was so much written that you could spend all your time reading. So then the dilemma is how do you know when you've read enough that it's time to take out on your own and try to make a personal contribution, and how do you know when you should keep reading what someone else has already done so you don't repeat and waste time and money.

That, of course, is one of the principal dilemmas that we face in communicating information of a technical nature. Also of a planning nature, when it comes to building new systems, because there are a lot of companies out there that go out of their way to keep each other from knowing what they're doing, and without some leadership from the government on what we should be working on, it's very easy to waste a great deal of time, talent, and money. In fact, contractors today are paid hundreds of millions of dollars in our overhead recovery to perform independent research and development and to do planning studies for new systems. We're paid that by the government, or reimbursed by the government. For us to spend that money on things that aren't real needs of the government is a disservice to the taxpayers.

We hear a lot today about a couple of hammers that wasted some money, a toilet seat, a washer, a coffee pot, a step ladder, a stool. If you added all these things together, I suppose they wasted a few hundred dollars. That's not the real problem. The real problems are the ones where large teams in industry spend years working on a project that is cancelled, or where they worked on the wrong project because they didn't have the information to understand what it was that the government really needed, and where they could have been making a useful contribution. That's why, I think, that this meeting is of such great importance.

I experienced one very memorable and disappointing event in that regard some years ago. I was working with an airplane company and it was during the war in Southeast Asia. We were building one of the Navy's aircraft. They were losing some of them over North Vietnam, and I can remember we went to the Navy and said since we built this airplane, could you tell us something about the circumstances under which our airplanes are being lost; maybe there was something we could do. I remember the answer coming back that that was an operational issue; the Navy handled operational issues and if they needed any help from us they'd let us know. I have been terribly disappointed by that. It's one small incident and thank goodness it's the only one I can think of in my career, but that's a classic example in my mind of the wrong way to approach a relationship between industry and government.

Today the issue of communicating between the two organizations is exacerbated by the abundance of information, the information implosion. We all hear by money shortages, we hear of talent shortages, oil shortages, food shortages, water shortages, but how many of us have recently heard of the information shortage? A lot of the information is there if we can get it to the people who need it and should have it in a way that they can use it.

The impact of the rate of change of technology on information when you're dealing with technical issues is a non-trivial matter. We all know, for example, the half life in electronics technology is a couple of years, measured by whatever. A new series of memory chips comes out in the semi-conductor field every two years on the average, so the half life use is perhaps two or three years of a semi-conductor. People have studied catalogues in universities and compared the content and courses in technical fields from one catalogue to the next catalogue to the next year, the next year, and so on. They've determined that in most technical fields today, the half life is anywhere from three to ten years, depending on the field, and if you look at the courses that were offered ten years ago, you'll find that much less than half of that material is even in the catalogues today, or of any real interest today. People have also done studies of libraries to study the half life of information. Some of these are intriguing. One study that I always was fascinated by was one where they looked at the number of times given technical articles had been checked out from the library. It had a record of who checked it out and when. They assigned a useful life to the document according to when the number of times it had been checked out was trailing off to where it was at half the original rate. Again, they found a half life of usefulness of these technical documents in the library, as measured by their consumer demand, to be on the order of five or six years. That's one reason, too, why persons coming out of college in a technical field who don't continue to try to educate themselves literally become professionally middle-aged by the time they're 25 or 30 years old.

Today I see people measuring information availability in a unit called LOCs, which to most of us in the software world would mean lines of code. In this particular measurement they were talking about LOCs meaning Libraries of Congress. That's what they were literally talking about -- how many Libraries of Congress worth of information are you dealing with. Before too many years go by, we'll be able to carry around with us a significant fraction of the Library of Congress in terms of electronic information stored. When that happens, then we've really got the issue of how do you keep it current, how do you know where to look for what you want, and how do you control the information that you don't want everybody to have. So if you think we've got a problem that we're here to deal with today, just wait.

Today, as we gather here, there are more scientists and engineers alive, doing research and writing articles, than there

would be if you added all the scientists and engineers together who lived up until the current time. In other words, over half the scientists and engineers who have ever lived are alive at this moment and they're all out there churning something out -- some of it right, some of it wrong. The problem is to figure out which.

Coming back to the pace of change in technology that is really the challenging element as you try to properly manage information, that pace -- I try to think how can one graphically illustrate that. If you just think of events of not that many years ago, take the . . . computer, 1944, I believe. The . . . computer had 18,000 vacuum tubes that used enough power to light a city of 1,600 people and another room to get the heat out of there. Here today you get much more computing power that you can carry in your pocket for $100, and much more reliable computing power, I might say. Or you take the Apollo launch vehicle, which, as it stood on its pad, reached a higher height still standing on its pad than Goddard's famous rocket did of not that many years ago, when Goddard first flew that very famous rocket. So the pace of change of most mili- tary systems has been one that poses a particular challenge to those of us who try to communicate information about either requirements or technology. In the military arena, the failure to recognize at an early time new technical advancements, new system needs, can have a consequence much more serious than in industry. In industry, one merely goes out of business. In the military sphere, one can lose battles, lose wars, or lose our nation. There are certainly exam- ples where an ability to very quickly adapt a new technical devel- opment has had a decisive outcome in history, or had an important impact. You go all the way back to the stirrup or the long bow or the gunpowder, the machine gun, the tank, the jet airplane, the atomic bomb, on up to today to perhaps the nuclear submarine and STEALTH and a few things like that. Enormous impact. And you think of radar in World War II. If the British hadn't quickly dis- covered how to effectively use radar, the impact it might have had on the battle of Britain. Or supposing today that we or the Soviet Union are more slow to recognize what one can do with lasers than the other, or what one can do with STEALTH than the other. Infor- mation is, of course, a very perishable commodity, and as we've said, it has a half life of a few years. Wars are not won with information that's sitting on the shelf in a laboratory. They're won with what gets out in the field. We may have the finest re- search in the world in our laboratories, but it will have no im- pact on the nation as a whole if we lose two or three years in the process of getting it out in the field where the user has it who can do something with it where it counts.

One nice part about being a Keynote Speaker, I saw a cartoon the other day that Bert Fowler was kind enough to send to me. It was a cartoon of two little ants and one of them was standing on an ant hill and the other one was walking quickly away from the ant hill and he had a suitcase in his hand. The ant on the hill was yelling, "Where are you going?" The other one said, "I'm

going to the Executive Meeting in Minneapolis." The ant on the
hill said, "You're not an executive. You've never had a job in
your life." And the other ant said, "I know, but I'm the Keynote
Speaker." One advantage to being a Keynote Speaker at this kind
of thing is you're not supposed to give any answers because if you
did there'd be no reason to have the rest of the meeting. So what
you're supposed to do, of course, is just leave everyone kind of
puzzled and wondering.

So I'm going to turn to that phase of my remarks now and talk
a little bit about some very tough issues that we face and that, by
the time you leave here, I'm confident you'll have them all resolved.
I'll look forward to hearing the answers.

These are issues that relate, in one fashion or another, to
the problem faced by researchers. The problem that I described
earlier where everyone in the university, I think, knows and honest-
ly believes that progress in technology is best served by great
openness among those who are performing research, so that informa-
tion can be transferred back and forth, readily and quickly.

At the same time, for legitimate military reasons, there are
often cases why you don't want to transfer that information back
and forth quickly. So you have this natural conflict that appears
as to what should be transmitted and what shouldn't be transmitted.
The problem is particularly acute when dealing in a world such as
we live in today, where the Soviet Union develops a great deal of
resources to try to obtain information about things that we're work-
ing on. And they don't hesitate to return that technology in the
form of weaponry. The best example of that I'm aware of -- I have
a photograph in my files left over from my years when I worked for
Secretary McNamara during the war in Southeast Asia. There was a
Russian air-to-air missile called the ATOLL being provided to the
North Vietnamese. One of them had been fired at an F-4 and we had
captured that ATOLL, and the photograph shows this, when it flew
into the afterburner and tore into the side of it and fortunately
the fuse failed and it didn't detonate, so the pilot flew back
with the ATOLL in his afterburner. A tough way to recapture infor-
mation, but the thing that was really startling was the ATOLL
turned out to be a copy of the SIDEWINDER that we built here, and
a rather good copy, including a couple of errors that were built
into the original wiring circuits. So here you deal with a society
that's very happy to take your information and turn it around and
give it back to you in a form which you'd probably just as soon not
have.

How do we make sure that all the researchers around the country
benefit from the new knowledge that's created, particularly in an
environment when a breakthrough in one area can impact another area?
I've always been impressed by the great scientists who have lived
who make a contribution not just to one field. They're not just
aerodynamicists, but they'll make a contribution in optics and in

electronics and in materials, maybe astronomy. They get bits and
pieces of information and bring them together, and if those bits and
pieces are all compartmented, you lose that synergism.

So that's one of the dilemmas we face. Another is a dilemma
of dealing with our own allies. It does little good to have our
military forces be the best equipped in the world in terms of tech-
nology and system concepts, if our allies on either flank are col-
lapsing because they don't have the best technology in the world
and they are outnumbered, as will we be in any major war, particu-
larly in Europe. And so it would be awfully nice to have your allies
have access to everything you know, and for you to have access to
everything your allies know. The problem is that there's also an
economic competition going on in the world in which our allies are
our major competitors, and every bit of technical information we
give them to help be sure that the flanks won't collapse around us
tends to come back at us in the commercial marketplace and hurt our
country in terms of the balance of trade, in terms of jobs, in terms
of gross national product, in terms of tax receipt, and in terms of
our ability to pay for national defense. As a result, we have less
money for national defense and a weaker national defense, so that
our piece of the front maybe won't be as strong.

Fortunately, as I said, I'm a Keynoter. I don't have the
answers, but it's an issue that we certainly have to contend with.
In the Japanese we're seeing very much evidence of this, where
they've done an admirable job (if that's the right word) of taking
U.S. technology, applying it in their factories with their disci-
pline, their quality, their marketing ability, and jamming it right
back down our throats. At the moment I happen to be leading a
study for the Defense Department on the U.S. semi-conductor indus-
try, and it without a doubt is one of the most distressing studies
I've ever been involved in, to see what's happening to the U.S.
semi-conductor industry. It's not being done by the Russians;
it's being done by our allies and by ourselves.

There's also the question of data that the government pays for,
our IR&D, as an example. The government pays for that. The govern-
ment might well take the posture that it belongs to the government,
it belongs to the taxpayer, and the government should be permitted
to interchange that between contractors who perform the work. The
contractors take the view that perhaps all commercial firms in this
country take, and that is that they perform research, they charge
their customers for that research, they pass it along in the form
of part of the cost of their products, whether you're talking about
General Motors or a pharmaceutical company or whatever, and that
that's proprietary information that belongs to the company and it
shouldn't be given to their competitors. Two very good arguments
that are still, to a degree, open.

Then there's the matter, as I said at the outset, of assuring
that contractors are working on things that really matter, that the

government really wants. To do that, the government really has to tell the contractors what it is that it thinks might be useful, and try to stir a dialogue with some feedback of what could be useful. I happen to think that that's terribly important. On the other hand, I also realize that some of that information is competitive sensitive, and that the government doesn't want to give one contractor a competitive advantage over any other, or an improper competitive advantage, and for that reason tries to guard some of that information. So there's another dilemma that one faces.

And then a question I would raise -- it's not really a dilemma necessarily, but with all the information that we seem to lose to our allies and the Soviet Union, I can think of little information that we got from them that has helped us. It's not that it's not there, I believe. It's that we're not very good listeners. For one thing, we translate very little in the way of technical information for use in our industry. Of course, hardly any of us speaks one language very well, let alone two! So the question of how can we better access information that's available publicly from our allies and countries who are not our allies is a question worthy of some consideration.

Mention was made in the introduction of my book, "Augustine's Laws," and I hasten to point out that a new version of it will be out in about three weeks. The good news is that it's twice as long and costs a dollar less. Now how can you get a better deal than that? But it's a broader book that deals with a number of matters relating to information management and information transfer, along with a lot of other subjects. I thought I might just wrap up by sharing a couple of thoughts from those chapters with you in the hopes that you might find them at least somewhat relevant.

One of the dilemmas I found is that in our modern society, much of the information is controlled and, in fact, created by lawyers, and the information transfer process between government and industry, and industry and government is to an increasing degree, to an alarming degree, in my personal opinion, controlled by laws and regulations and attorneys and so on. And so thinking about this, I made a plot, as engineers will do. It's a plot of number of lawyers per capita in various countries around the world versus the productivity improvement over the last 15 years. In the productivity improvement in these same countries versus lawyers per capita, the correlation is absolutely incredible. I won't tell you which way it goes so you'll buy the book, but the correlation is unbelievable. You'll be surprised. Just to show you how good it was, and this is a true story, I went to my General Counsel when I was writing the book because I had data on most all the countries, and on France I had the productivity but I didn't have the number of lawyers. So I read off the curve and I called my General Counsel in and said, "Could you check and see for me if there are about 16,000 lawyers in France?" He couldn't understand

why I wanted to know that, but he's used to my questions so off he went. About three days later, he and his cohorts were all back and they had found the answer. The answer was, "15,600 -- how did you know?" I showed him my process of how I determined this, and my own General Counsel threatened me with a class action suit! I couldn't believe it. John Naisbitt, who wrote "Mega Trends," as you'll recall, said that lawyers are the beavers of society; they get out in the mainstream and build dams. In the communication arena, there are a lot of us -- and I'm not just picking on lawyers this morning -- a lot of us who I am afraid are contributors to building dams.

Another chapter in the book deals with training manuals and maintenance manuals for various products. To take a few military examples, I made another plot of the number of pages in the manuals that go with various items of equipment. Take tanks. I went back to the old World War II tanks and took the number of pages in the maintenance manual of every tank. As you could well imagine, we started out with a little pamphlet and today you get an encyclopedia with your tank. If you do that for airplanes, and go back to the P-51 out through the F-15 or F-18, and you make that plot of the number of pages in the manuals, the number of pages is just going out of sight. The thing that's disturbing, though, is not that but the suggestion of General Paul Gorman. I tried to get a measure of the ability of those of us who are mere human beings to absorb all that information. Supposing we suddenly became tank drivers and had to absorb all this. How well could we contend with this burst of information? The best way I know to measure how you can absorb information is by the college board scores. What better method could there possibly be? So I plotted on the same graph versus time the college board scores of the students who take them each year. There's a very disappointing thing. In 1976, it reached a peak and ever since then it's been going down, with the exception of the last year or two when there's been a little noise of a couple of points, but leveling out. So you've got the amount of information we have to absorb going up, and the ability to absorb is going down. The Augustine's Law that stems from this points out what a tragic situation -- for 14 million years humanity has been evolving from the ape, and then in 1976, just when we needed it the most, we're going right back to the ape. Very disappointing.

So anyway, those are a couple of laws that perhaps pertain to the subject of your meeting.

I'd like to close with a note that so often in this world there are things that affect us, that have affected us in a major way in technology, that would have been awfully easy to overlook or that appeared by surprise or was seen by somebody who wasn't even looking for that particular piece of information but had the ability to piece it together and make it useful. A few examples come to mind. Take the drug penicillin. You'll recall, I'm sure, that Sir Alexander Fleming, when he discovered penicillin, didn't

go out to discover penicillin. He happened to have a slide for a microscope that had been contaminated with mold, and in the area where the mold was, the culture he was trying to grow wasn't grow-ing. If the slide had been clean, he probably would never have discovered that. Or the fact that synthetic fibers were discovered when a Dupont researcher didn't properly clean a reaction vessel he was working with and got the first clue that led to synthetic fibers, even though he was working on an unrelated polymer research at the same time. Artificial rubber -- the clue that made that possible, a laboratory assistant was inappropriately using a mer-cury thermometer and it broke, and when the mercury got into the mixture it proved to be a catalyst that was needed to make the re-action an effective one. And the search for artificial sweeteners was found when a researcher had a cigarette on a laboratory bench, and in smoking the cigarette something had been spilled and he noticed a sweet taste and became curious about that. Of course, William Roentgen discovered x-rays when he was actually looking for cathode rays. It goes on and on. The United States of America was discovered, or perhaps rediscovered, when Columbus was looking for the West Indies. So there are so many opportunities to get synergism from information if it's just available to the people with the imagination to know how to use it. The task at hand is to try to figure out how to get that information to the people who need it and to be sure it doesn't get to the people who shouldn't have it. That, I think, will be a central issue that you'll need to contend with during the coming meeting.

It's been a privilege to share with you my thoughts on the subject. I wish you great success for the remainder of your meet-ing and thank you for your attention.

Dr. Young

I have one very quick announcement to make. Somebody asked me about the electronic mail in IR&D into DTIC and I mentioned that TRW was the guinea pig, the company that was going to kick it off. I have John Hanson's permission to say that if any of you have any questions about that, would like to know more, John Hanson from TRW can give you more details if you're interested in catching him later.

It is my pleasure now to introduce the next speaker, Colonel Don Carter. I've known Don for more than 10 years, I guess, and we have had two tours together in the Pentagon in the same office, in the Under Secretary of Defense for Research and Engineering Office, both working for the Deputy Under Secretary of Defense for Research and Advanced Technology back in the mid-70s. Then Don and I went our separate ways and then came back together again, Don coming in three years ago originally to be the Assistant to Dr. Edith Martin, and he didn't know what he was in for when he came because Dr. Martin left and Don Carter took over. I have particu-larly warm feelings toward him. He knows DoD extremely well, and he has been extremely helpful in getting many, many programs off

the ground.   I think he did an outstanding job at that, both in this tour and previously.

Let me tell you a little bit about his background.   He has a very interesting background, having a degree in civil engineering from Mississippi State.   He also spent some time at the Air War College.   But unlike most civil engineers, he has served in different technologies from engineering to medicine.   In fact, he was the Deputy Commander for Research, Development and Acquisition at the Aerospace Medical Division, which is unusual for an engineer, at Brooks Air Force Base immediately prior to coming back to us in the Pentagon.   For about 14 months or so after Dr. Martin left, Colonel Carter became the Acting Deputy Under Secretary of Defense for Research and Advanced Technology, and ran the office for us, and then about a month ago, when Dr. Carver came in as the political appointee and took charge, Don has stayed on and acted as his Assistant Deputy Under Secretary and taken him by the hand and showed him around and introduced him to the rest of us.

It is a special pleasure for me to introduce Don Carter, who is going to talk to you from his perspective.

Colonel Donald I. Carter

Thank you, Dr. Young.   It's a pleasure to be here this morning.   Leo relayed the story about how an engineer like me got associated with a bunch of medics, and as I used to tell those medics when they tried to look down their noses at me, "It's all electrical engineering and plumbing anyway, isn't it?"

I'd like to thank ADPA for the opportunity to present this this morning and visit with you.   I think this is one of the highlights of the Science and Technology Program in the Defense Department -- how we handle the information that we acquire, where does it go, how is it used, and how is it best handled.   One of the best ways to do that is to communicate effectively over a fairly broad range within industry, within universities, and within government and between universities, industries, and government.   To do that, you need us and we need you.   We need to be able to do this in a much better fashion than I think we have over the last two or three years.   I look forward to your meeting to see if there aren't some wrinkles in the system that we can iron out and make things a lot easier for all of us.

Before I get into some of the details of the technology, I'd like to show you a little bit about what we're talking about and at the same time to present a little of the technical data for planning that perhaps you are interested in. (Slides not available)

Insofar as the Defense Science and Technology Program is concerned, this slide shows what we're looking at.   This is the FY85 and FY86 Science and Technology Programs.   The FY85, as was approved by the Congress, and the FY86, as was the request to

Congress. Recognize that we got our FY86 appropriation only in the middle of December, so I'll show you how those numbers vary from that. You'll notice also that there's a lot of money there. The next-to-bottom line in Total Science and Technology for FY86 we requested was $5.3 billion, compared to $4.5 billion basically in FY85, which was a real growth of about 13% over the 1985 number. That was fairly good.

Now, that gets into the authorization and appropriation process, however, but we did very well in that, too. As we came out of the appropriations conference committee in mid-December we had lost something like $247 million out of that $5.3 billion in DoD Science and Technology, which left us at about an 8.3% real increase over FY85.

This basically is in keeping with some guidance that the Secretary had given to the Services, DARPA and D&A back in December of last year to try and increase their programs by 8% in FY86.

That's the good news. The bad news is Gramm-Rudman. About two weeks ago, as we were allocating the set-asides for Gramm-Rudman, we have lost another $323 million out of that Science and Technology line, so we're now down to about a 2.3% real increase in our Science and Technology Program over FY85.

That was a little bit of hard news to take. Also I was pleased to note that we still have a positive growth over our FY85 number. A good bit of that was in the research program. The number in the research program went up to a little bit over $1 billion with the addition of funds by the Congress for a Universities Research Initiative.

If we go to the next chart, I'd like to show you some of the things that we do and what the Science and Technology Program is about. Some of you in the audience might recognize that as the cockpit of a . . . . camel. It has three or four vital instruments of air speed, altitude, and . . . head pressure, and compare that with the next vu-graph which shows the cockpit of an F-15, one of our current line fighter airplanes. In this you can see that there are something like 400 knobs and dials and gauges that the pilot has to understand and be able to operate. Not all simultaneously, because he doesn't have that many fingers, but a lot of them simultaneously.

I would like to show you -- but I don't have the vu-graph with me this morning -- the cockpit of the F-18, which takes a lot of that information that's displayed in this situation and converts it into CRT or cathode-ray-tube-type displays, and show you the progress that we have made insofar as our ability to present information to the pilot.

Other advances in our Science and Technology Program is a program that we have underway at the moment called Short Take-off

and Landing Maneuvering Technology Demonstrator, which is an F-15-type aircraft, that we are modifying to try and be able to use in short field landing operations. For example, if we have our runways cut in Europe, how do we effectively operate airplanes out of them. With this particular one, we have some front-end . . ., as you might be able to see, some stiffened landing gear, some thrust vectored in the engines at the rear end of the airplane, and some heads-up display and some throttle and control system linkages to improve the pilot's ability for low-speed flight. This is a particular program that's underway at Wright Patterson at the moment.

Another example of work done in the program is one that's a little bit out of date. The slide says 1985 VHISIC radar signal processor, but if one looks at the possibility of microelectronics and the capabilities that are afforded to us by microelectronics, they are quite tremendous. If you look at the number of chips in the present F-15 radar signal processor -- almost 5,000 chips -- we can do the same thing and enhance capabilities, quite frankly, with only 45 chips. The size is significantly reduced, as you can see, but I think the thing that really makes the difference is the second line from the bottom that shows the mean time between failure of the current F-15 radar signal processor is about 100 hours, and the VHISIC technology we hope to get that up to about 10,000 hours, which effectively is the life of the airframe. So if we can do that, we can really save a lot in the maintenance business.

This slide is an all-composite aircraft, a helicopter as you can see, with about the only heavy metal parts being the engine and the transmission gear box and so forth. With this kind of technology, we're able to reduce the weight of the aircraft by about 25% or extend range by 25%, or those kinds of figures that are available in increased capability.

One of the problems we have is the ability to present information to the poor guy that has to maintain those complicated systems, whether they be aircraft, ships, tanks, or whatever. As Mr. Augustine was mentioning earlier, as the amount of data increases, our ability to absorb that data decreases. This is one way to try and get at that particular problem using, again, a flat panel display and microprocessors to be able to put the -1 tech order or the tech order on maintaining that particular system into a little flat panel display system such as this and carry it out to the airplane or the tank in a suitcase, and have everything you need at the tips of your fingers to be able to do that. This is possible and some of the prototypes of these are underway. And, of course, you can use this same basic technology with any kind of information that you would like to put into the system, whether it be for a particular airplane or for a particular tank or ship or, in commercial sectors, for the kinds of maintenance that is done in commercial sectors.

I'd like to talk about the breadth of the program in Science
and Technology, and it encompasses lots and lots of individual
efforts. We look at the Science and Technology Program as that
that is the low-cost end of the acquisition spectrum, if you will,
in that we can spend a little money in a lot of these areas and get
the advances that we need to be able to incorporate that into hard-
ware systems. Once we turn a contractor on to build a system with
a large number of engineers to do the specific design and the metal
fabrication and so forth, it becomes a very expensive situation,
so if we can do our homework early enough with this kind of capa-
bility, we'll be much farther ahead.

The performers of the program vary according to the type of
work that's done. In the numbers that I showed you earlier, we
spent about $1 billion a year -- these are FY84 numbers -- in the
6.1 or basic research program. We spent about $5 billion total
in the Science and Technology Program, and for FY86 we've spent
about $35 billion in the total RDT&E program. If you look at the
performers, it's done calculated because most of the good ideas
in basic research really come out of universities, some out of
industry, and in government laboratories. So you can see the dis-
tribution is primarily in universities. As we get into the Science
and Technology Program, though, and get into building prototypes
of systems, it really should be done in industry because it's the
industry guys that are indeed going to build the systems as we get
into the hardware development and acquisition portions of the sys-
tem. So you can see the ratios change quite significantly, and in
the 6.3 arena, the Advanced Technology Development, probably 90%
of the funding is indeed in industry with very little in universi-
ties and very little in in-house laboratories.

All of that does indeed generate lots and lots of data, and
I think it's very important that we in the Science and Technology
Program treat this data as it really is, i.e., a national asset,
and get the most out of that technology data. It's very important
that you in industry, that we in government and universities have
access to this information for several reasons. One is the uni-
versity researcher or the government or the industry laboratory
individual would like to be able to validate the data in the truth
process of validating scientific experimentation. Secondly, and
probably just as important if not moreso, is we need the data used.
If we get the data out of the technology program of $5 billion a
year and the data is not used, then we have lost the reason for us
to be here, so we have to get that data available to you in a
fashion that you are able to use it. Thirdly, we need to be able
to prevent duplication of effort that could be done with this sys-
tem or with the accessibility to the data.

There are different types of information that are available
to us, and I think it's different, quite frankly, for the managers
of the program and the scientists and engineers who perform the work.

For the managers, you need the kinds of information that I was just
giving you -- the size of the program, how much is in the tech area,
how much is in particular tech areas, how much is in electronics,
how much is in specific portions of electronics, and so forth. And
you need that so that you can plan your program insofar as the acqui-
sition of people to do the work, the acquisition of facilities and
equipment to go along with being able to do the work. We also hope
that you use this data in your IR&D programs so that our programs
are indeed complementary, and you are working on the kinds of prob-
lems that we in the Department have. It also should be noted, how-
ever, that this type data in the Science and Technology Program
does not change that drastically as a function of time. For example,
if we have a 10% change in the direction of a particular program,
that's a fairly major change in a research project because you have
a group of chemists or mathematicians or scientists of a particular
type working on the problem, and if you change what you want those
guys to do you may have to get a different group of people to do
the type of work that you want done. So quite frankly, if you look
at the trends in the Science and Technology Program, they don't
change that drastically over time. We do, indeed, have particular
efforts on occasion to emphasize new thrusts and to decrease thrusts
that we have underway. I might mention just a couple at the moment,
one being the VHSIC Program. The VHSIC Program is coming to frui-
tion and logically, as it does come to fruition we will be decreas-
ing the amount of money associated with that program in the fairly
near future. In FY86, we have almost $200 million in it, and in
FY87 and the out-years, that number will be going down slightly.
We hope to complete the program in about three years.

At the same time, however, there's another technology that we
are emphasizing, and we will be emphasizing in our FY87 request to
Congress. That's one that's called a Monolithic Integrated Circuit
Program, primarily focused on . . . arsenide. We see it as a very
promising technology to be able to do lots of things in transmit/
receive situations and electronic warfare situations and things of
that nature. It will be very complementary to the VHSIC program
and we see it increasing and having a fairly high level of effort
over the next four to five years. It's that kind of information
that I think you need insofar as your managers are concerned.

Insofar as your scientists are concerned and your engineers
who are doing the actual work, I think it's a different kind of
information. It's the accessibility to the technical reports, it's
the accessibility to the kinds of work that we're doing in-house,
that our contractors are doing and putting the results into DTIC,
and you need access to that. They need the research that's under-
way and the research that's planned so that it can, indeed, be
complementary with the work that they're doing in industry.

If one looks at the sources of information, I think there are
several. Again, they are contingent to a degree on the type of

use that you need for it. We give lots of briefings. For example, in the position that I've occupied for the last year or so, we probably give 15 to 20 briefings per year on our technology program. For example, in one of the first ones that we will give on the FY87 program, it will have to be after we release our budget request to the Congress and it will be at an ADPA meeting that General Miley will be hosting at the National War College, as a matter of fact, the first part of March this year. Soon after that, or in close proximity to that, we have an IEEE meeting that we will be giving the same type of information to. This again is planning-type information. In addition, we will have our Congressional submission. It will go to the Hill very soon. We're putting together our annual posture statement, if you wish, and that will be available probably in the March timeframe, as the budgetary process in Congress is going to be compressed quite strenuously this year. We're not quite sure whether we will appear before Congress to defend our entire Science and Technology Program this year. If we are, then that will be available after that time; if we do not, then we will make that available as soon as we can.

In addition, as you well know, there are the program element descriptive summaries that we send to Congress very soon, i.e., this month; the 1634s that are each an individual project and work unit basically. The briefings to industry -- one of the best ways that I found when I was in a laboratory to communicate that laboratory's needs with industry was to have a briefing-to-industry day, or if it's a great, big laboratory to have a briefing-to-industry two days, in which we in essence laid out our program plans for the next three to five years and what we planned to pursue for the next three to five years. We briefed this to industry in general, those who were interested in participating with us. Good response, good interchange of ideas and information, and we, as well as industry, I think, got a lot out of that. We weren't going to tell you, of course, that we were going to spend $3,426 in this particular contract because we'd like to have a little competition in bidding for those particular contracts. But we would tell you that we were interested in life support systems that would be able to support a pilot who would like to do a 9G turn at 50,000 feet and be able to eject in case his airplane blows up in the process of doing that.

In addition, there are lots of conferences and symposia that our scientists and engineers participate in, and we encourage that very, very much. The more we can get our data to you to use, not only for military systems but in your commercial systems, I think the better we'll be.

One other facet for information that is available to you is in the Commerce Business Daily, of course, in the requests for proposals, but as I like to tell the international friends -- and there are a couple here today -- if you wait until you read the listing of the solicitations in the Commerce Business Daily, you're just about behind the power curve, so you've got to get out there and pitch before that happens.

Enough of the preliminaries. Let's get a little bit into why I came this morning, or at least why Leo sent me over here. We've had two conferences in this business before this one that's hosted by ADPA, and I think we got a lot out of those conferences. We have a few successes to report; we also recognize that we're not all the way there yet.

We have established a mechanism for addressing most of the issues that were noted at the last conference, and DoD's Information for Industry Committee, with representation from each of the Services as well as industry, has met quarterly, I believe, for the last eight to ten months or so in trying to look at common problems and trying to discuss issues, needs, and concerns related to the R&D planning process and to the information exchange associated with that. These interactions have influenced us at the higher levels in the Department, and we're trying to put some emphasis on trying to get this information available. It's a very tough problem for some of the reasons that Mr. Augustine referred to earlier, and I'll get into that in a couple of minutes. But I think this was indeed an important first step toward getting along with solving our mutual problem.

Many of the recommendations of the last conference dealt with improving the information processing, primarily through DTIC. I don't want to pre-empt Kurt Molholm because he's going to be on this afternoon, but I think DTIC has done its usual fine job in trying to implement as many of those recommendations as they could. General Babers has been very supportive, as I'm sure you heard earlier this morning. For example, in the Form 55 procedure, it was streamlined to give you contractors a lot quicker access to limited documents; DTIC has done this. In addition, the new document marking system, established for different reasons, has recognized that you all do indeed have need for access to technical reports, and that marking system provides the ability for you to do that. Under the old system, we had to generate Form 55s -- to make sure that we were giving it to you and that you had reason to have it -- for about half of the requests that we received from you, but under the new system I believe that figure should go down to about 20%, and hopefully that should speed things up quite significantly.

Also, DTIC has upgraded its referral services very significantly, and they're still trying to do a better job at matching the user's information needs to the resources that they have available to provide that. I think the Gateway computer system holds a great deal of promise in that particular area.

The Defense Research On-line System, the DROLS System, I think is a very, very useful tool for you all, and this system has expanded a fair amount over the last year or so. I hope we're going to be able to meet your response time needs for these.

One of the major recommendations for the last conference, though, was replacing the 1634 database with a new on-line system. We've encountered many kinds of problems in trying to do that and I think this is one of the things that you all should address in your workshops tomorrow. Maybe look at the kinds of data that you need in light of the different requirements that you have insofar as planning information for managers, accessibility of information to your scientists and engineers, and see how we can best meet those needs. If we tried to match everybody's needs with what we have, we might generate a different system for each of the categories, or a different system for each of the particular industries involved. That would be pretty much impossible for us. It would be very burdensome for us to do that. I think the kind of data that you would like to have is the kind that's available to the lab tech directors and the project managers who are indeed managing our systems. Let's have some interchange with that and see if there are ways that we may be able to consolidate that data, but work very closely, if you don't mind, with Kurt Molholm so we don't administratively overwhelm him.

We've also tried to identify some likely candidates for replacing the database for the program planning summaries, and we had several criteria that were set up for consideration. Major emphasis would be placed on using existing reports to avoid duplication, or using data that did not satisfy an internal information requirement, i.e., one that we would have on our own. Also, a data source which is complete and accurate was another target, of course, as was providing the data in a periodically-updated situation so that you could contain the kinds of data that you need and have a degree of specificity and accuracy in that data that you need. It was suggested that we use the mini-MIPs or the RD-5s to do that, and DTIC built a microcomputer-based system to retrieve records in that format, but unfortunately, when we started to figure whether we should release that to industry we hit some snags. One of the questions was should we share the data with industry before we share it with the Congress, because when we share it with you before it gets to the Congress we have a little bit of difficulty in getting them to approve our appropriations the way we want it. Of course, it gives you the opportunity to influence them on the Hill in a manner that we may or may not want to. But everybody does use the information that's available to best advantage, and I don't object to that, quite frankly.

Some arguments have been made that the descriptive summaries are the only legitimate source of planning information because that's the request before Congress. But recognize also that Congress doesn't approve the amount of bucks that are in the requests that accompany the descriptive summaries. Also, by the time that Congress does approve the funds -- for FY86, for example, it was about the middle of December before we got our authorization conference bill, and even now we're still fiddling with the '86 program because we don't know yet the exact impact of Gramm-Rudman on us.

So where do we stand now? I think the fate of the microcomputer data designed for the mini-MIPs is uncertain because that particular budget format will probably disappear as a result of efforts to standardize the program in the budget input, and the format most likely to be used in the future is the program element descriptive summaries because it is the most comprehensive. But then you have a problem with that in that that's a heck of a lot of volume of data on those descriptive summaries, and we may or may not be able to generate that kind of basic information processing needs in DTIC to support you.

A recurring thing we found while exploring ways to increase the DoD/industry interaction is that many of the best results come as spin-offs of programs that were intended primarily for something different, i.e., the discovery of penicillin and the other items that Mr. Augustine mentioned earlier. The new technical document marking system, I think, is one of those that will assist in flowing the information to you in industry.

Another problem cited at our 1982 conference was the difficulty that contractors have in acquiring crypto equipment needed to operate a classified DROLS terminal. Interacting with us on a classified basis, of course, is a lot better because you get accessibility or access to a lot more information than you do if you interact with us in an unclassified mode. We've wrestled with that problem for a long time without a heck of a lot of progress, and then as it turns out, the people in the National Security Agency were trying to develop a security system for the contractor community to make it easier for you all to acquire and retain some crypto equipment to protect and maintain that sensitive information. We think there may be some synergism that can be generated using that kind of system. I believe Mike Flemming from the National Security Agency is going to discuss that a little bit later this afternoon on the program.

Another problem that we have had is the scientific communication in national defense program, and I'd like to say a few words about that. This has been the one that had made us in the papers a lot about a year ago insofar as the Defense Department is controlling access to scientific information. Since World War II, we've really relied on our technological superiority to offset the Soviet manpower and weapons advantage, and that's really the only way we can do that. This technology advantage has been achieved by rapid advances in science and engineering, enabled in part by the free and open exchange of ideas among researchers. We support this free and open exchange of ideas. That's what got us here and as Bum Phillips, the ex-coach of the Houston Oilers used to say, you ought to dance with the one that brought you.

The U.S. advantage in sophisticated weaponry, however, is eroding very seriously. They placed a lot of emphasis on upgrading their scientific capability and on obtaining, through legal and

illegal means, key Western technologies. In response, new emphasis has been placed on the protection of technology -- technology, not science -- that is incorporated into military systems and equipment.

Our concern is not over the fundamental scientific principles of a concept, but over the technology, design, manufacturing and testing necessary to transition that fundamental concept into military equipment.

. . . result of application of advances in geophysics, non-linear acoustics, and high accuracy time measurement. This does not mean that we want to control information flow in these scientific areas. The study of techniques and gravity measurements in models for predicting the earth's geomagnetic fields is fundamental research as are studies of non-linear acoustic interactions in liquid media or . . . corrections that must be applied in measuring time in systems moving at high velocity. Discussion of these topics should remain unconstrained. However, when the discussion turns to how these new concepts are being incorporated into equipment intended for use on ballistic missile submarines, then that's a different matter.

There have been expressions of concern over the perception that control of technology will also be a control over legitimate scientific discourse, and this has not been the case in the past and it's not our intent now. I believe this concern has been exacerbated by the general trend in universities becoming more involved in applied research. As this occurs, there is a tendency for universities to become involved in technology, design, manufacturing, and testing those things that transition the science into hardware.

In essence, we're asking no more than private industry would ask regarding proprietary research -- the opportunity for first use of the results of our applied research so that we can return a profit to our stockholders. In our situation, the profit is peace and freedom, and our stockholders are the American people.

The DoD policy on the release of scientific information is outlined in a letter that the Secretary of Defense has sent to IEEE in December of 1985, and we have given that fairly wide distribution. It stated that the Department has a longstanding policy regarding the open nature of unclassified basic research, and has encouraged the free and open exchange of information through all channels, including presentation at open conferences. Restrictions will not be placed on the conduct or reporting of unclassified research that (a) is funded by DoD Budget Category 6.1, which is basic research, whether performed by universities or industry; or (b) funded by DoD Budget Category 6.2, which is exploratory development and performed on campus at a university, except for those rare exceptions where there is a high likelihood of disclosing performance characteristics of military systems, or manufacturing technologies that are critical to our defense. However, these restrictions will be incorporated into the contract and agreed to by all parties before the research has begun.

Now let's talk a little bit about technical data. The DoD policy on withholding unclassified technical data from public disclosure is based on Title X of the U.S. Code, as added by the Public Law that was our Department of Defense Authorization Act for 1984. This gives the DoD the authority to withhold from public disclosure unclassified technical data with military or space application in the possession of or under the control of a DoD component, and also which may not be exported lawfully without an approval authorization or license under the U.S. export laws. We have limited the use of this authority only to technical data that disclose military critical technology. What we're saying there is that design data, design drawings on F-15s, F-16s, that sort of thing, really shouldn't be released to open public discussion because it will fall into the hands of the Soviets because the technology associated with it is very useful and directly useful basically only to building those kinds of systems.

We've put procedures into place to accommodate virtually all domestic requirements for this data so that we can use it in our domestic situations, not only for defense systems but also for commercial applications, and all other technical data that doesn't fit into this category is, indeed, releasable -- all unclassified technical data, I should say.

I'm about to run out of time, so in summary, I believe we've made some progress over the past year or so. However, I think we have a long way to go and we'll need your help in doing this very, very difficult task. I wish you success in the conference and I would be pleased to answer, if I can, a few questions.

Question

Why would you withhold funding information regarding particular projects from industry?

Colonel Carter

There are situations in which we could release a lot more information, I believe, than we currently do where we have funding information associated with agglomerated or grouped projects so that you can't really discern how much we intend to spend on a particular project. When we send our money requests to the Congress, we say that we will spend -- and you can read the descriptive summaries as well as the documentation that supports them and look at the budget lines as they are approved by Congress. In general for those budget lines, there are several contracts within that particular budget line and you can get some indication there. I have no objection. I think you should do that. Insofar as some projects, however, that have only one contract associated with that particular budget line, you know exactly how much money we have there. It really doesn't make that much difference to me. It gives you a band that you can shoot at. If someone can underbid you in a reasonable fashion with a good proposal, then fine.

Question -- cannot be heard

Colonel Carter

In the budget request regarding the Science and Technology Pro-
gram for FY86, we have sequestered about 6.4% of the $5.1 billion
that was appropriated. The SDI line was protected from cuts, and
therefore there are a few program elements that are in the same funding
category, if you wish, with SDI. For example, the entire DARPA
budget and the entire Defense Nuclear Agency budget. To offset
the non-reduction, if you wish, in the SDI line, both DARPA and
DNA are taking a fairly severe cut -- double the cut that the rest
of the program is concerned. I believe that DTIC's reduction is
at the 4.9% level, which is the amount that the remainder of the
program suffered.

Question -- cannot be heard

Colonel Carter

I can tell you in gross terms what it looks like without Gramm-
Rudman. Our request that is going to the Hill for the Science and
Technology Program in its entirety is about 3% real increase. Now,
recognize that the Gramm-Rudman sequestering amount for FY87 will
be very severe, probably as much as 15%. So how that's going to
sort out, we don't know just yet. We also recognize that the bud-
get process on the Hill will be very rapid this year, in that the
law requires that we have the appropriations bill arranged and
finished by about the end of June, as I recall, which means that
mark-up for some of the Armed Services Committees will be as early
as the middle of February. The Secretary is scheduled to testify
on the 4th or 5th of February, and our boss, Dr. Don Hicks, the
Under Secretary for Research and Engineering, is scheduled to
testify about the middle of February. It will be a very rapid
process this year.

Question -- cannot be heard

Colonel Carter

We have a new line, as a matter of fact, a new program element
in reliability, maintainability, supportability, those kinds of
things. I've forgotten the exact amount in that line. I think
it's about $15 million in that new start for FY87. It's one of
the things that I personally think we need to give a lot more atten-
tion to.

Question -- cannot be heard

Colonel Carter

The question was if we go to program element descriptive sum-
maries as our mechanism of communicating with you, we're not going

to give you as much information as we give you if you get the RD-5s
and the mini-MIPs, and that would be true if that is our intent.
I think that in the workshop that you have over the next day or so
you need to address that and let us work that problem with you.
There may be other mechanisms that we can use. I'm not sure we
can provide all the data that's in the descriptive summaries.

I think I'm getting the indication that lunch may be on the
table, so I've enjoyed very much being with you. Thank you.

Mr. Saunders

To start our afternoon session, I'm very pleased to introduce
Major General James C. Cercy. He's the Commander of U.S. Army
Laboratory Command. He previously served in the Office of the
Deputy Chief of Staff for Research, Development, and Acquisition
in Washington, D.C., first as the Deputy Director of Combat Support
Systems Directorate and then as the Deputy of the Weapons Systems
Directorate. General Cercy has earned his Bachelor of Science de-
gree in civil engineering. He also holds a Master of Science de-
gree in mechanical engineering from the University of Arizona. He
has served as Command Director with the North American Air Defense
Command, NORAD. Of his many decorations and honors, they include
the Defense Superior Service Medal, the Bronze Star Medal with two
oak leaf clusters, the Meritorious Service Medal with two oak leaf
clusters, and the National Defense Service Medal and the Army Com-
mendation Medal.

General Cercy is going to give a review of the Army programs
to improve R&D planning information utilization.

Major General James C. Cercy

Thank you very much. I'm particularly pleased to be here
this afternoon to talk to you about improvements in the business
that my new command is all about. Rather than being at the dis-
advantage of coming this afternoon after everyone this morning
told you how it should work, and have to come up here and tell
you how it does work, I'm going to tell you how we're going to
make it work the way you were told it should work because my com-
mand is brand new as of 1 October. So I'm in the business of ex-
plaining my goals and objectives to everyone, what it is I'm try-
ing to do in this first year to convince people that the Army's
got a good idea here, trying to tie together the tech base efforts
in the early part of the acquisition cycle. One of the major
pieces of that is a good, solid interface with industry. So if
we're not doing it right now, we're sure going to try and we'd
appreciate any comments you have today or as the symposia goes on.

I'll attempt to outline for you today who we are in Laboratory Command, how we're organized, and what we're all about as far as interfacing with you and getting the information to you that you need to do the job that we all want to work together for, and that is to get the right material out there to our soldiers in the field.

I think you heard this morning that if you first find out about it in the Commerce Business Daily, it's too late. We recognize that and we want to work with you so that when you see that, it's just a reminder to you of what we've already been talking about.

In order to explain to you what Laboratory Command is and where it fits in the overall AMC structure, the bottom piece of this vu-graph is a continuum that's supposed to flip down after I explain to you that Laboratory Command, on the left hand side, is a major subordinate command in the Army Materiel Command. It's a two-star command in that four-star command of AMC at the same level as the commodity commands that you all are most familiar with. The commodity commands are those six commands -- the Aviation Systems Command; the Communications Electronics Command; the Tank Automotive Command; the Troop Support Command; and the AMCCOM, the guys that build the bullets; and Army Missile Command, the place I used to work. Those are vertically-oriented commodity commands and they do basic research, exploratory development, full-scale engineering development, production and initial fielding and support of materiel in that vertical commodity area. Everyone associates AMC with those commands, because that's where the big bucks are and that's what you read about on the front page of the Washington Post and other newspapers. The command on the right-hand side is a little bit less as far as publicity is concerned, but certainly no less as far as its role in the overall acquisition business, and that's the Depot System Support Command. The Depot Systems Command was formed some time ago when AMC recognized that they needed a central control of those depots out there that were supporting these commodities produced by these commodity commands. Now what AMC is saying is they want a centralized control of the front end of that acquisition cycle where the basic research and exploratory development is going on, thus the formation of Laboratory Command. Now, the continuum across the bottom just shows you that starting from the left with basic research and moving on through to refurbishment and product improvements of equipment in the field done out there by DESCOM, if you look up to the commands, those are the general areas that the preponderance of their work is done, but there are no lines between those areas because there has to be an interface across the areas. As I mentioned, the commodity commands do basic research as well as the labs, which says immediately there's got to be some kind of integration, some recognition of duplication of potentials and determinations of whether that's healthy or whether it isn't. Same kind of thing on the far end of that cycle. (See chart, page 38-A).

WHERE WE FIT

★ ★ ★ ★

AMC

★ ★   ★ ★   ★ ★

| LABORATORY COMMAND | COMMODITY COMMANDS | DESCOM |

TECH BASE   DEMO   FSED   PROD   FLDNG   SUPT   SUPT   MOD   REFURB

MATERIEL LIFE CYCLE

38-A
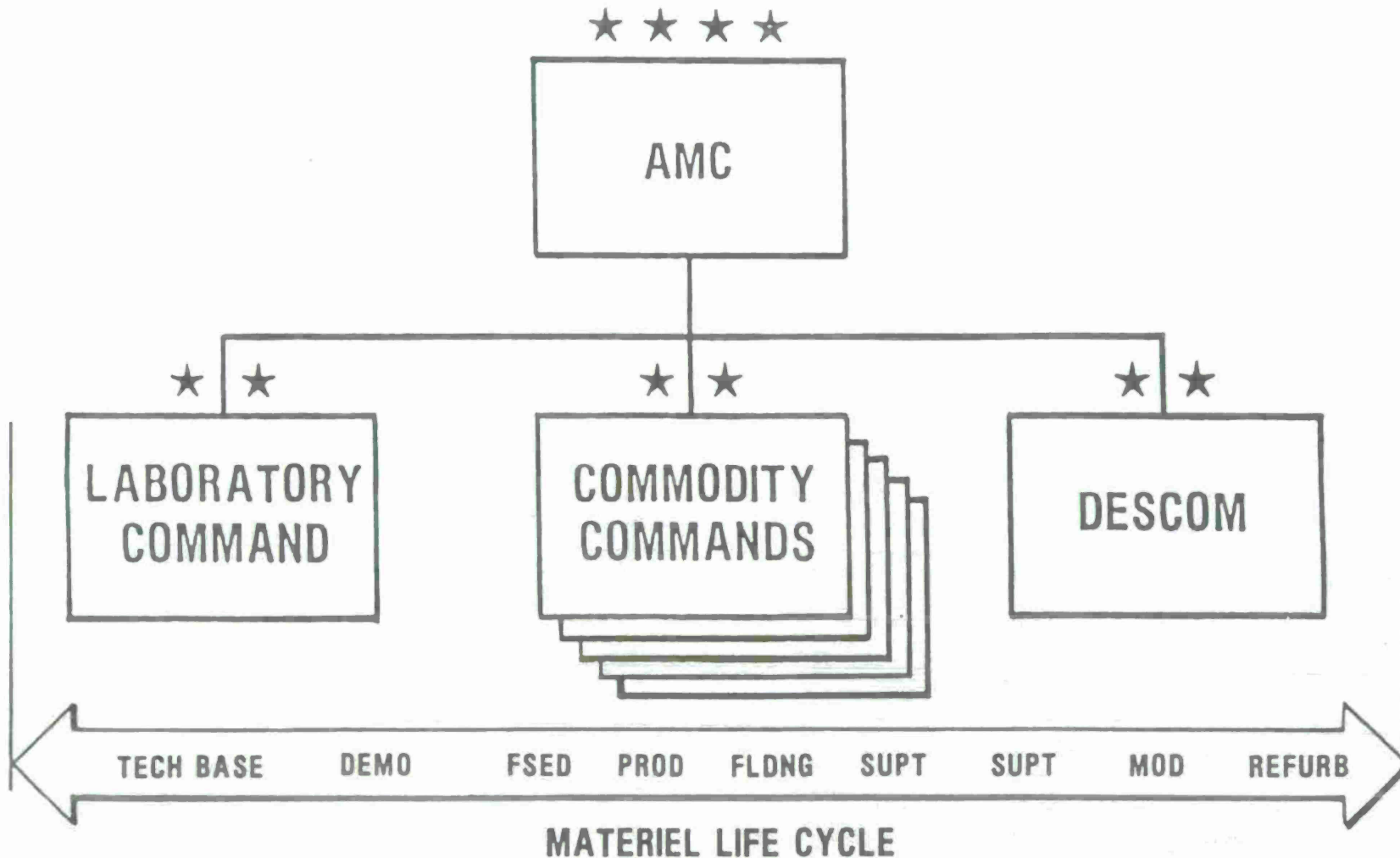
The mission of Laboratory Command is two-fold. I wear two hats: one as a commander, which addresses the bottom bullet that says I run the Corporate Technology Center for AMC. I have a number of laboratories under me, which I'll show you in another chart, that are concentrating on these general research areas that go across those commodity areas and mission areas, the generic kinds of research, technologies that would help identify hostile systems, whether they were aircraft or tanks or whatever. So the guy building tanks on the grounds is interested in that, the guy building helicopters in the air is interested in that, the guy building air defense systems is interested in that. It's a technology that's generic across the board and needs to be handed off to more than one of those commodity commands, and more than one of those commodity commands may be working on it, as well as my laboratories. That's what the Corporate Technology Center is all about. (See chart, page 39-A).

Here's the way it's organized. (See chart, page 39-B.) I have seven laboratories. Across the bottom, reading from left to right: the Atmospheric Science Laboratory out at White Sands, New Mexico, interested in the business of meterological sciences, weather information, and so forth, that the commander in the field needs; the Ballistic Research Laboratory up at Aberdeen Proving Ground in Maryland, specifically in the business of armor/anti-armor, and vulnerability; the Electronic Technology Devices Laboratory at Fort Monmouth, New Jersey, the Army's lead in the VHSIC Program and other microelectronics efforts; the Harry Diamond Laboratory, co-located with my headquarters at Adelphi, Maryland; the Human Engineering Lab at Aberdeen Proving Ground -- the man/machine interface kinds of things; what used to be the Office of Missile Electronic Warfare and now named the Vulnerabilities Lab, VAL, out at White Sands, New Mexico, interested in the business of electronic countermeasures and high power microwaves effects on our electronics, etc.; and what was AMRAC up in Massachusetts is now the Materiels Technology Laboratory, charged with the responsibility for the development of light-weight materials to lighten our forces, and specific programs such as the corrosion program for the Army. In addition, the Army Research Office at Raleigh-Durham, North Carolina, comes under Laboratory Command and is the interface with industry in the 6.1 program and the basic research efforts there across the board, and in addition, an assessment of the maturation of the technology in the 6.2 program. You'll notice a Council at the top, where we have included the technical directors from the commodity commands' Research and Development and Engineering Centers as members of a council chaired by my technical director to be sure that the work going on in these corporate laboratories in fact supports the needs of those commodity commands.

Now let me refer back to the previous chart and the first bullet, and that is the second hat I wear as a staff officer in AMC Headquarters, and that is the Deputy Chief of Staff for Technology, Planning, and Management, and as such, am responsible for

LABCOM HAS TWO MAJOR MISSIONS

- **MANAGE THE AMC-WIDE TECH BASE PROGRAM**
    - PLAN, PRIORITIZE, AND ALLOCATE (6.1, 6.2, 6.3)
    - REVIEW & ANALYZE
    - TRANSITION ADVANCED TECHNOLOGY
    - INSTITUTIONAL OVERSIGHT

- **MANAGE THE "CORPORATE TECHNOLOGY CENTER"**

39-A

LABCOM:
THE "CORPORATE TECHNOLOGY CENTER"

U.S. ARMY
LABORATORY COMMAND

39–B

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┌─────────────────┐       ┌──────────┐
│   RDE CENTER    │-------│  LABCOM  │
│ ADVISORY COUNCIL│       │   HQS    │
└─────────────────┘       └──────────┘
                               │
                          ┌────────┐   MANAGE UNIVERSITY AND
                          │  ARO   │   IN-HOUSE RESEARCH PROGRAM;
                          │        │   PROVIDE STAFF
                          └────────┘   ASSISTANCE TO HQS
```

ASL	BRL	ETDL	HDL	HEL	VAL	MTL
MET DATA	ARMOR/ANTI-AR	VHSIC	ELECT. FUZES	ROBOTICS	ECM	COMPOSITES
WEATHER	VULNERABILITY	ADVANCED	RADAR	MANPRINT	HPM	CORROSION CONTROL
ENVIR. S.C.	LETHALITY	ELECTRONIC	NUC WPN EFF.		EMP	LIGHTEN FORCE
		COMPONENTS	MICRO ELEC.			
		BATTERIES				

management of what we call the tech base, which includes 6.1 through 6.3, 6.1 being basic research, 6.2 exploratory development, and 6.3, insomuch as a demonstration of technology with troops such that it is then ready for a hand-off to a commodity command for full-scale development and eventually, production and fielding. So we're looking across that entire tech base to include the work not only that's ongoing in my laboratories that I own, but also that's going on in what used to be called laboratories and are now called Research, Development, and Engineering Centers in those commodity commands. I was at a meeting last Saturday down at Fort Knox, and I listened to the user community talk about all its needs for the future and where it wanted to go with follow-on vehicles, and it seemed to be this large menu of desires, and then people came in from the government agencies, laboratories, and RDE Centers and gave this large menu of technologies to satisfy that. I said, you know, I've never been out there in the business world with a specific job, but I kind of feel like a guy who runs a large restaurant chain, and some of those restaurants I own and others of those restaurants I don't own, but I provide the food that they advertise on their menu. Here I'm addressing a number of people that want to eat six meals a day and they want everything on every menu, and I can only buy so much food to put in my restaurants. So we've got to find a way to focus our efforts, and that's the big challenge and that's what we want to work with you on to be sure that we've got that squared away, and my job, as the Deputy Chief of Staff for Technology Management, is number one and these are the objectives I gave my people in my command. Focus the technology on the user's needs. Number two, integrate the efforts across those commodity commands, so that if I have someone out in the Aviation Systems Command laboratory either doing a job there or contracting with industry to develop a composite material for a helicopter, and I have somebody at the Tank Automotive Command doing the same kind of thing for a composite material for a light-weight Bradley turret, and I have the same typical kind of thing going on at the Materiels Technology Laboratory in Massachusetts responsible for those kinds of light-weight materials, that I know that and that I've got a coordinated effort, and that we're benefiting one from the other on what's going on and we don't do the job twice or pay for it three times, and that we've got a lead effort in that thing. So focus first, integrate second, and then thirdly, you all understand and are, I'm sure, painfully aware of how fast technology is moving forward. We've got to do a better job of getting it into the field, not just because it's needed but when it's needed. In order to do that, I have to facilitate the transition of technology into existing systems and product improvements thereof, and follow-on systems. So we have to work in the Laboratory Command very closely with the commodity commands, and as they plan the life existence of their systems and the improvements needed as they know the threat is building, we concurrently work with them and mature the technology out of the labs or wherever it's coming from, demonstrate it in time that it can be inserted into their programs. So the third objective or charge is to facilitate the insertion of that technology.

And then fourthly, the one that I think really hits home here today, is that we do some more self-examination within and get off this kick that if it's not invented in our laboratories it's no good, or that we've got to do the job in-house, and recognize the talents and abilities that you all have and spend some time on transferring the information to you as to what our specific needs are and what it is we want to do, and put a little bit of money in up front to show our sincerity and then let you run with the ball, recognizing the return on investment that's ahead for you. Where you don't want to do that or can't do that, then we ought to concentrate on it more in our laboratories. Those are the four keys that are driving LABCOM's existence over this first year.

Having said that, I think you can grasp the feel that if you're going to centralize a place within the Army, the Army's Materiel Command, to interface with industry, to transfer information about where it is we want to go in R&D, it ought to be this command. So that's why we have that responsibility and, in fact, it breaks down into these four areas. (See chart, page 41-A) It's the last bullet that we want to concentrate on today, and that is the information for industry and how we transfer that.

Our Information for Industry program is centralized within the Technical and Industrial Liaison Office, TILO, and the control of those for AMC rests within the Laboratory Command. The additional means of providing information to you is by various briefings and symposia that I'm going to talk about that are done by the various commands within AMC. The key player, again, is the Technical and Industrial Liaison Office. Our TILO offices are typically staffed with three to five people, and are normally headed by a scientist or an engineer with both R&D and procurement background, and broad knowledge across the R&D area. Currently, each R&D major subordinate command, each one of those commodity commands I mentioned before, is represented by at least one Technical and Industrial Liaison Office. In addition, there's a TILO co-located with the Navy and the Air Force in the Tri-Service Industry Information Office here at AMC Headquarters.

Now, we're not all that we should be yet, and you all know that the Army's goal is to be all you can be, so let me tell you we're going to do that. We do not have descriptive summaries available at all the TILO offices; we do not have requirements capabilities documents available at all the TILO offices. Three of the offices, the AMC Office, my office at LABCOM, and the one up at Fort Monmouth at CECOM, have expanded visitors programs and do, in fact, have access to these kinds of documents. We want to get them in the remaining offices and will work to do that for you.

The visitors may also review the Army Modernization Information Memorandum which has detailed descriptions of Army systems, missions, and function statements, organization charts, and hopefully, the requirements documents here shortly.

AMC TECHNOLOGY INTERFACE WITH INDUSTRY

INDEPENDENT RESEARCH & DEVELOPMENT

SMALL BUSINESS INNOVATION RESEARCH

UNSOLICITED PROPOSALS

INFORMATION FOR INDUSTRY

41-A

The Technical Industrial Liaison Offices can also sponsor companies with the Defense Technical Information Center through the Army Potential Contractor Program, and can provide advice and sponsorship for R&D on funded studies.

The final point I showed in transferring information was that Briefings and Symposia. (See chart 42-A) There are two categories: the Advance Planning Briefings for Industry, which are usually referred to by their acronym, APBIs, and then what have been called Technical Briefings, Technology Symposia, and Topical Briefings, depending on who's giving them, the host activity.

The one I want to tell you about today is the Technology Symposia, which we're running at Laboratory Command. Before I move to the next chart, let me just dwell on that for a second as to why we're doing that. I talked to you about the goals of focusing and integrating, and in order to do that, one has to go through a PPBS cycle each year -- the planning, programming, and budgeting business -- and much of the effort, as you might guess, in the early part of the acquisition game is based on the planning. But the plans are no good if the current efforts going on in programming and budgeting no longer support them and therefore they must be adjusted. So one needs to stay abreast of all three processes if any one of them is going to work well. There needs to be a continual exchange of information in order to do that, and I understand that that problem is, if not just as important, more important to you and how you go about your business. So again, our command will be concentrating on doing that. Now, at the center of that is a means to focus the transfer of information. The Army this year said -- and you may or may not be familiar with this -- that we were pretty successful in the past when we said we can't do all things and do them all well, so we need a way to focus our efforts and identify five major weapons systems that no matter what happens we'll hang onto those and the money in the R&D and the money in production, and so forth. And that was the M-1 tank, the Bradley, the Apache, and the MLRS, those kinds of systems that we do now have and that are in the field. So that worked pretty well. So we said, gee, maybe we ought to do that again. What are the five things we want to concentrate on this year? And we finally decided that rather than come up with . . ., what we really needed to do was to focus our efforts in key operational capability areas, areas that we could define not just one system, but actual thrust where systems need to work together to provide significant capability improvements to do that job or function. We came up with the five areas: C^3 -- command, control, communication; RSTA -- reconnaissance, surveillance, and target acquisition; battlefield lethality; battlefield sustainment; and soldier and individual unit performance enhancements. Those five key operational capability areas. And then threaded through all five of those, the charge to lighten the force because if it takes thousands of C-141 plane-loads to do whatever it was that we came up to improve RSTA or improve C^3 with, it's not what we want. We have to be able to move

it and do its job. So what we in the Laboratory Command decided to do is as we examined each of those areas and the breakdown of tasks and objectives -- and by the way, each one of these key operational capability areas has a proponent on the DA Staff. For instance, for RSTA, the staff proponent is ACSI, the Army Chief of Staff for Intelligence. To address those tasks and objectives under each key operational capability area, we asked what are the technologies that will give us the increases in performance in these areas? And which ones are mature that we can start to demonstrate, which ones are critical blocks right now that we need to put more money in basic research to try to solve the problems so we can move ahead? We came up with a list of those and we said the best way to address those is to hold a technical symposia on each key operational capability, and name those technologies we want to address at that symposia; put that information out to industry ahead of time, to all the government agencies ahead of time, and let's come together to talk about that and exchange the information as to where we're going in the future.

(See chart 43-A) So we schedule a symposium for each key operational capability area. When we bring everyone together, we update everybody on the threat at once. Where is it that the enemy is now, and where is he going, and what do we have to do to address that. We bring the Training and Doctrine Command in as a representative of the user, and explain how we want to fight in this arena and what the needs are for those specific systems to succeed on the battlefield. Then we ask the Army Research Office, which belongs to LABCOM, to do their job of assessing the tech base. What's going on in the universities in the basic research that they sponsor? What's going on in DARPA? What's going on in industry in IR&D programs? What's going on that could address these needs? And let's tell the audiences how we see that, how we assess that. And then let's have individual government organizations that have specific program elements funded in this area, or projects or tasks, come forward and state what the status is thereof and how they're coming. Now, everybody listens to all of that so everybody's up to speed. And then we ask industry to come with new ideas and tell us what you have to add to that in closed session so that proprietary rights are not exposed in a competitive environment. Then we hold an executive session at the end to determine what, if anything, we want to do about refocusing programs, dollars, and so forth, or changing schedules to accommodate what we've learned in light of what we have planned and programmed in the past. So we hope, then, to make this a continual process. It was just the first year to get a start that we decided to do it on the five key operational capability areas. But we're wide open to some smaller area, and have one a month or one every three months or whatever it is, but to keep this exchange going and keep everybody up to speed so that we can move out a little faster in some of these areas. Then we'll document those proceedings and provide them for folks to realize where we're going and why. Hopefully, if we do that job right it will help us to focus the technology on the user needs. (See chart 43-B.) It should aid in the

TECHNOLOGY SYMPOSIA

APPROACH

- SCHEDULE A SYMPOSIUM FOR EACH KOC AREA

- CONDUCT:
    - REVIEW — THREAT (ACSI)
        - NEED (TRADOC)

    - ARO TECH OVERVIEW

    - SPECIFIC GOV'T EFFORTS (LABS & RDE CENTERS, DARPA, ADEA, DOE, OTHER SERVICES)

    - INDUSTRY/ACADEMIA EFFORTS

    - EXECUTIVE SESSION

    - DOCUMENTED PROCEEDINGS

43-A

TECHNOLOGY SYMPOSIA

USE OF RESULTS

- FOCUS TECHNOLOGY ON USER NEEDS

- AID IN PRIORITIZATION OF TECH BASE PROGRAM

- IDENTIFY TECHNOLOGIES FOR EARLY DEMONSTRATION

- AID IN PREPARATION OF MID AND LONG TERM
  TECHNICAL PLANS

- MAKE GOVERNMENT/INDUSTRY PROGRAMS MORE
  COMPLEMENTARY

43-B

prioritization of the tech base program that we get the right
things funded so we get them done on time. And should help us to
recognize when something is mature and it doesn't just sit there
on some laboratory bench someplace. There are little vignettes
about a lot of things, and one of them goes back to General Marshall
and a major that worked for him by the name of Bedell. That story
sort of leads to how we got the jeep, and instead of going through
the monstrous bureaucratic process we now have of layers and layers
upon layers of divisions and branches and chiefs and so forth, and
probably months before the major could get to the general, he
walked into General Marshall's office and said, "There's a man out
here who says he's got a vehicle that we ought to consider." He
got the boss's approval right there. I don't remember what the
numbers were now; I think when they started out they were going to
buy 35 of them, and before he walked out that day they signed up
to buy more than 300 of them. That's how we got the jeep. I'm
not saying that's the way we ought to do business today, but we
ought to find ways to allow those ideas to come forward and surface
and be seen so that the decision-makers can decide whether we want
to do business that way or not. So I think this is one way that
presents that kind of an opportunity.

This chart shows the schedule of the symposia. (See chart,
page 44-A.) It doesn't do you much good right now because what you
see up there has been done, and the RSTA one is ongoing right now.
I would hope that all of you were aware of these. If you weren't,
please see Chuck Chatlynne and deluge him with your complaints
because he was supposed to make sure you were. We did this so
fast that you MAY have seen it first in the Commerce Business
Daily, in this case. We'll try to make amends for that in the
future. We have not yet set the dates for the bottom three, so
recognize those are coming and Chuck will get the word out to you
when we get those scheduled.

The technology symposia have not replaced the advanced plan-
ning briefings for industry, where mid- and long-range plans are
described. But there are changes here, too. The APBIs now address
single topics rather than a command's entire research development
test and evaluation program. So each command has more frequent
APBIs rather than a single one every three years. LABCOM does
have the responsibility for coordinating the AMC APBI schedule and
will publish an annual directory and schedule therefor. We'll
include the technology symposia schedule as we get that laid out,
also, in this directory, so both will be available to you from one
source.

In summary, then, I think we do have an active program within
the Army to provide industry with information as to where we're
going and where we want to go in the future with our R&D programs.
We do need your help, though, as we're in this embryonic stage in
LABCOM to help us understand where we're doing things well and
where we aren't doing things too well because it's a lot easier

TECHNOLOGY SYMPOSIA

US ARMY LABORATORY COMMAND

SCHEDULE

- **LIGHTEN THE FORCE**   **10-12 DEC 85**

- **BATTLEFIELD SUSTAINMENT**   **15-17 JAN 86**

- **RSTA**   **28-30 JAN 86**

- **BATTLFIELD LETHALITY**   **TBD**

- **SOLDIER AND UNIT PERFORMANCE**   **TBD**

- **C^3**   **TBD**

44-A

to adjust now in the front end than it is a couple of years from now after we get cemented in the way we're going to be doing our business. So I look at this as an excellent opportunity to get those kinds of comments from you, and we already know where some of the shortfalls are. As I mentioned to you, the ROCs -- the requirement operational capability documents -- the descriptive summaries, and the availability of those out of the TILO offices. And I also recognize that we need to examine the staffing of some of those offices and where we're going in the future, and that is being considered in the overall resourcing requirements as we finalize the laboratory command and its efforts.

With that, I'll quit and take any questions or comments anyone might have.

Question -- cannot be heard

General Cercy

The question, for those who may not have heard it, was it seems like we structured to accommodate the technology pull, but what about the technology push. Where is the opportunity that somebody working in the research area comes up with a bright idea, how does he get it forth? Specifically, we have not focused 100% of every piece of work or piece of money we put out in those labora- tories, or don't intend to, on those needs. We intend to set aside a certain amount of money -- and my lab directors are after me to define that amount and I won't do it because it's individual in each case. But to recognize the innovativeness that's there. And to encourage that and allow it to come forth. So I didn't address it here, but it's a very, very important piece of the way we do business and we have recognized it.

Question -- cannot be heard

General Cercy

We're looking at that now. That's one of those resource re- quirements that I mentioned that we have to examine. As you might guess, with the reorganization -- and I didn't go into the details, but what we took was the nucleus of the headquarters of the Elec- tronics Research and Development Command to form the headquarters for the Laboratory Command. We brought a small portion of the staff from the AMC headquarters with the full function of the Deputy Chief of Staff for Technology Planning and Management, and that's all being sorted out right now. So from a resource standpoint, that TILO office staffing is thrown in the pot and being examined with everything else.

Question -- cannot be heard

General Cercy

I would say that we have the world's living expert in the audience, but I won't do that to John Ramsden, who is going to talk to you tomorrow. But let me say that's the one thing I didn't, because of the short period of time, go into in more detail, but I'd be happy to do this with any of you or with any group set aside in the future if you come to agreement that you want to. That is go through the process of the planning and programming from the AMC standpoint as to what feeds the long-range research, development, and acquisition plan that you're asking about. In AMC, that's called the MAMP Process -- the Mission Area Materiel Planning Process, and the culmination of that is sort of executive summary type described in a book that we're going to call the Green Book. We have not published this yet, but it's gone to the publisher, and what it consists of is the effort we went through last year, which is the first year we did that. It has its inaccuracies in it and a lot of warts for the first time through that need to be fixed. But it does give a picture, by mission area, of what's out there now and where we're going in the future and how the technology is being invested in to be brought along to mature those systems and the follow-on systems. So I think that would be helpful to you for what you're asking for, and it also tells you about some generalities of the pots of money to support that and so forth. We are about to start the process for this year's development of the MAMP, and we hope to do it well enough so that when we, the Army Materiel Command, and the Training and Doctrine Command working together, hand in hand, user and developer, hand that to the Department of the Army that guys like Colonel Ramsden will be able to erase the MAMP and put Long-Range Research and Development Plan on it. And it's not that we're doing it in isolation, either, because he and his guys will be attending our meetings as we go about that business.

That's a long answer, but it was a chance to get on the soap box a little bit.

Question -- Cannot be heard

General Cercy

The man sitting right on your right-hand side can provide that for you -- Chuck Chatlynne out of the TILO office.

Thank you very much.

Mr. Saunders

On your program, the next speaker scheduled is VADM Baciocco, and he will not be able to speak today. General Lamberson is prepared to speak at 2:30, so it's great that we have bosses because Kurt Molholm, my boss, is willing to leap in and give the next talk. He's supposed to be talking after the coffee break, but we're

going to rearrange the schedule to make this all fit. I'd like
to introduce him at this time.

Kurt Molholm is the Administrator of the Defense Technical
Information Center. That's my organization. DTIC is a central
source from within the Department of Defense for centralized docu-
ment services, and now expanded to research and development data
base services, which include both technical and management informa-
tion, information analysis center support, technical library sup-
port of the Defense Scientific and Technical Information Program,
the STIP program. Mr. Molholm has a B.S. degree in Business Ad-
ministration, University of Oregon, an M.S.A. in Administration
from George Washington University, and a resident class of the
Industrial College of the Armed Forces. He has been awarded both
the DLA Exceptional Civilian Service Award, the DLA Meritorious
Civilian Service Medal, and, particularly important, he's been
recognized by the William A. Jump Memorial Foundation for exemplary
public service. Before coming to DTIC, Mr. Molholm was Chief of
the Technology Division, Office of the Assistant Director of
Telecommunication Information System at Headquarters, DLA. We're
very privileged to have Kurt Molholm as our new administrator and
I'd like to introduce him at this time.

Mr. Kurt Molholm

As I told Bill, and as I mentioned to our annual Users Confer-
ence last year, in fact, I do -- I work for Bill, and I work for
Paul Robey, and I work for the other folks at DTIC, and I work for
you. So I'm certainly glad that he can push me around and put me
in different positions.

According to the agenda, I'm to talk to you about DTIC programs
to improve R&D planning information availability. Well, DTIC does
have several initiatives which contribute to this end. However,
before I discuss them I'd like to digress a little bit and talk
about information. Information is power and we didn't need John
Naisbitt to tell us that without accurate and reasonably complete
data, mission efficiency and effectiveness are certainly impaired
and, in many, many cases, the mission just couldn't be accomplished
at all. (See page 47-A.) Scientific and technical information is
a highly valued resource in this post-industrial era. Information
resulting from research and development, the programs, the inven-
tions, the technological innovations are certainly providing the
impetus not only to us in today's technological societies, but also
those countries throughout the world. With technology so critical,
with so many potential areas to explore and conquer, and with the
ever-present need to allocate available research and development
dollars, it's critical that we have access to the information to
help us decide what to do, as well as the information on what has
already been done.

The potential value of information increases markedly as its
completeness and accuracy increase. Take for example a picture

THE NEW SOURCE OF POWER

IS NOT MONEY IN THE HANDS

OF THE FEW, BUT INFORMATION

IN THE HANDS OF MANY.

NAISBITT

puzzle with one piece missing. With that one piece missing, the mind still can very well grasp the meaning of the puzzle and take pleasure and enjoy the puzzle. The situation changes considerably, however, when the puzzle pieces are not completely present. It becomes very difficult to decipher the puzzle, let alone its meaning.

At present, Defense planning information is a puzzle with a lot of missing pieces. Technology adequacy is not one of the missing pieces, for we have the technology to make planning information available on-line to qualified users. Security is not a missing piece, even though security is frequently given as a reason for holding back planning information. The missing pieces are the program summaries themselves, summaries which act as signposts indicating the direction our efforts are leading.

DTIC operates within the DoD policies and handles information entrusted to it in the manner prescribed by these policies. It has not only a U.S.-wide system, but it does have some terminals located in Canada and in Europe at NATO so that we operate within the prescribed methods, but we have the technology to do this. We don't determine what distribution will be made of specific data or at what level it should be classified. We also don't establish DoD information policy. I sound like a bureaucrat -- I'm just doing what others tell me! We do, however, have as part of our mission the responsibility to participate with the OSD and with other federal information agencies to try to determine a better way of relating and transferring scientific and technical information. And since that's part of my job, I feel that I can at least talk some philosophy before I get down to the specifics.

This morning we heard about the fact that perhaps DoD should make its planning information available not only to those within DoD but also to our friends in the private sector who help and manage the R&D. This need not really be discussed as a new policy because it really is already the national policy and, of course, the DoD policy. In April of 1983, over 2-1/2 years ago, the Industry Advisory Group which assists the DoD Scientific and Technical Information Program, met and expressed the need for the long-range planning information and funding data. Namely, they wanted narratives of what needs to be done and ballpark figures of its costs. The issue was not new then and it's certainly not a new one now. Discussing the issue is not even a new idea, but it's still, unfortunately, necessary to do so. It's difficult to dispute the sound logic of providing the defense planning information to industrial partners in the defense community who contribute so significantly to the defense effort and the economic well-being of the United States. I also recognize the irony of discussing this at this time with the GTE case now being pursued.

Suppose, for a moment, that an emergency has occurred, an emergency that makes it necessary for you to travel across the United States as quickly as possible. Well, air travel is the only way of

getting there, so you call your friendly travel agent and that
agent has at his or her fingertips a terminal that can decide what
route to take. The first question -- where are you going? Now,
you see, that agent has the means to get you there, but if you
don't answer the second question they haven't put together the
need with the where, so the question you have to ask yourself is
are you going to let that airline get you to where you want to go
or are you going to go it alone. In this analogy, the "you" is
the military services and the airline is the industry. Your emer-
gency destination is analogous to the plans for preserving the
U.S. security. Can the Services afford to do it alone? Namely,
not to reveal where they're going? Well, the perils of not having
access to this information, of not accomplishing our mission effi-
ciently and as effectively as possible, make a strong and convincing
argument, in my mind, for the need for sharing such information
with industry. Without the presence of the missing pieces, the
missing planning information I mentioned before, what I'm about to
say is meaningless.

With that understanding, however, let me tell you about some
of the things DTIC is doing, is planning to do, or has already done
to make information more available to the R&D community.

Following discontinuation of the R&D Program Planning Database
on January 1, 1983 DTIC did a good job and a good deal of study re-
garding what we should do to replace that. The R&D Program Plan-
ning Database, or the 1634 as it was called, had failed to continue
to meet the needs of the DoD, and the purpose was to find the
planning databases in our study to take a look at what could be
done to build such a database.

Now, DTIC again has made a program summary database available
online which complies with the OSD positions regarding planning in-
formation. The RD-5 was the form that we used and we put that on-
line available to those who were authorized to use it. Speaking
of forms, we've also done some procedural things so that now you
have a single form so you can get information, either on a regular-
ly scheduled basis or on a specific basis from many of our data-
bases, rather than having separate forms for each of those. We
hope we've made the system easier for you. You see, the centralized
databases in DTIC are unique to DTIC and unique to the Department
of Defense. They exist no other place. The information is essen-
tial in both the Services and to the industry to find out those
things to help better manage and improve productivity. In addition,
DTIC has an extensive collection of technical reports with about
1-1/4 million titles online so that we can give you information of
what was already done. We also have an independent IR&D database
that's available to DoD only, and it's treated as proprietary
information.

As planning information requirements evolve, we will make the
necessary changes to our systems and provide authorized users

within the defense community the information that they are author-
ized to get and need to do their job better. It's this area that
we're particularly talking about in the use of the PEDS. We recent-
ly reorganized our Directorate of Database Services so that we have
an organization concerned with the management and the analysis of
databases so we can help address problems that we've had in the
past of filling them up and finding better solutions for you. It's
this organization, for example, that is working to develop the
method to put the program planning data back online. It is online,
but to expand it and to make it available to more, if possible.

A number of DTIC initiatives are also underway in the area of
the work unit information system. This is the system that we have
to give you information about what research is going on. So here
we have a thrust to say what may be needed, and we also have a
work unit information system that tells you what's going on. These
are being carried out to hopefully reverse what I think is a very
disturbing trend.

You see here that since 1974, RDT&E funding has increased
over five times, yet the input of new records into the work unit
file has remainded relatively flat. In fact, it's decreased from
that time. (See chart, page 50-A) I can only assume that a lot of
work is not being reported.

In this chart I've added another thing, and that's the techni-
cal reports which are the results of completed work. (See chart,
page 50-B) You see, they, too, are relatively flat against the
rapidly accelerating rate of the RDT&E funding. To me, this is
indicating that there's much lost that would help perhaps even de-
crease the slope of that spending.

We're looking at ways not only to increase the use of input
per database contributors, but also to facilitate ease of access
for qualified users of the database, and provide more useful data
from those databases. One developmental approach we're looking
for is for the work unit input and for applications of our other
databases once it's implemented; that's the use of optical charac-
ter reading, or OCR equipment. You say it's an obvious choice, but
the fact of the matter is we have multiple fonts, we have multiple
inputs, and we have a large volume which is much different than
what most OCRs are geared to, and it's a tremendous expense. So
we are experimenting to use OCR to help better upgrade our system
in terms of input more rapidly, make it easier to you all to sub-
mit your input, but additionally, we are making our systems avail-
able more on online systems where we can. For example, the Air
Force is working to have the ability, from a decentralized stand-
point, to input their work unit input updates online through DROLS
terminals. This means that it's easier for them, it means the data
is more available, and therefore more available more quickly means
more valuable information. In terms of the WUIS, we're also looking
at how to have more useful information in the WUIS. We're developing

DOD RDT&E FUNDING VERSUS WUIS INPUT
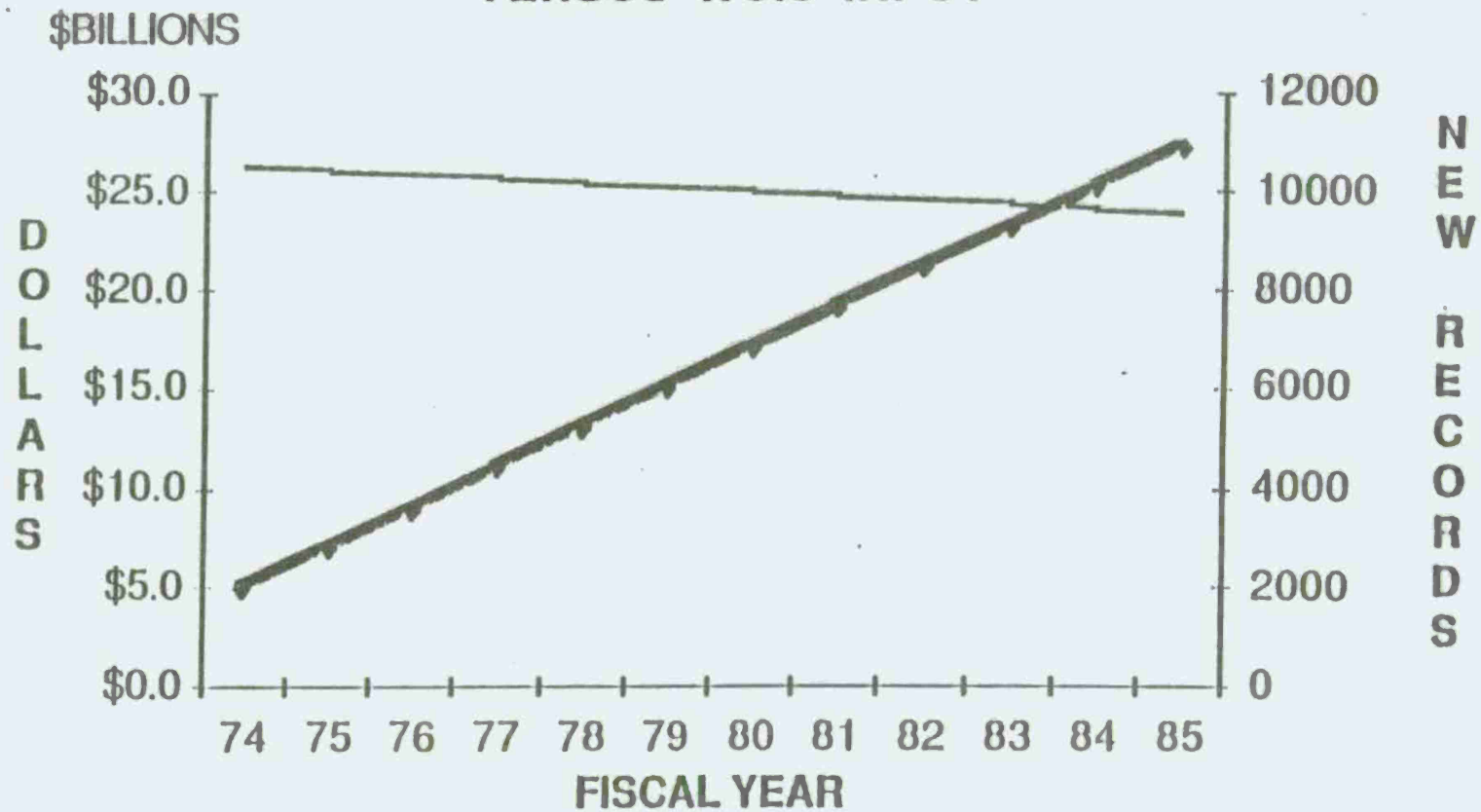
Trend of DOD RDT&E FUNDING — Trend of WUIS INPUT

50-A

DOD RDT&E FUNDING
VERSUS WUIS & TR INPUT

50-B
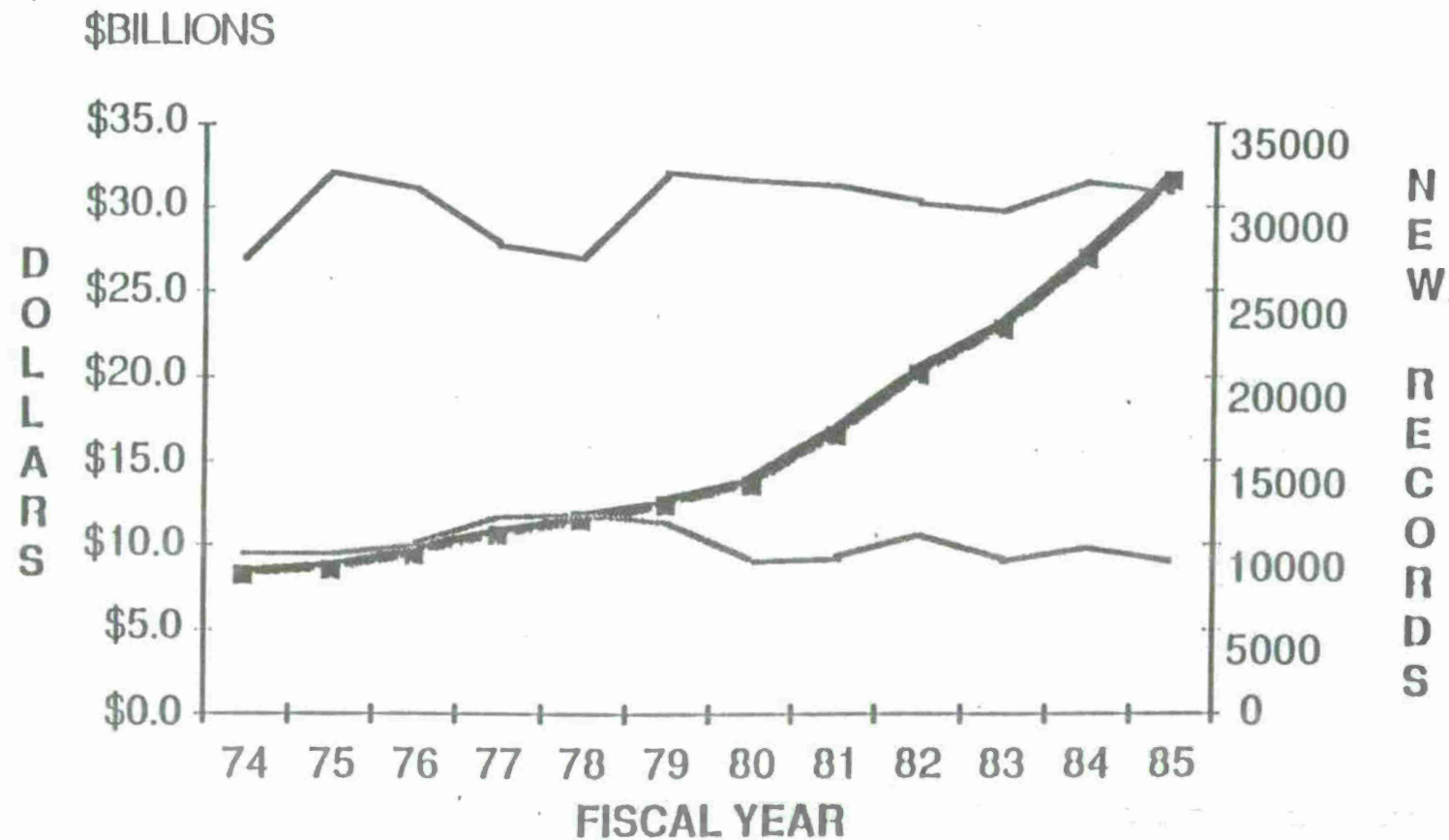
functional requirements, which we'll talk about -- what more should be in there, what shouldn't be in there, how to improve the way that we capture it, and what is reported. (See page 51-A)

One of the problems we've had is that security is oftentimes given as a reason for failure to input information, and we've recently developed a security module which will be included in our growing marketing program, because one of the parts of our market- ing program is to let people know the value of the information and hopefully, therefore, have them be a participant in making the information more complete in our databases. Security is a major concern in all of our functions. Our security system undergoes periodic scrutiny by various government organizations, and this is an example of one relatively recent situation where the Naval In- vestigative Service examined the vulnerability of our technical information in DTIC's technical report collection in response to a concern that the flow of sensitive information was going to the general public. (See page 51-B) NIS was satisfied that DTIC fol- lows the document distribution limitations that are provided by the document originators, and they were encouraged to learn that we are subjected to numerous external security reviews and this is done quite often. For example, we just completed our annual review from the Information Security Oversight Office, the ISOO, and there was only one minor finding from that which we quickly corrected. That had to do with reclassifications of data.

DTIC's relationship with the National Technical Information Service really has been fertile ground for misinterpretation. (See page 51-C) The Federal R&D community needs to be aware of the distinctions between the two. As DoD's central element for provid- ing document and database services, DTIC serves a closed community consisting of DoD, its contractors, other government agencies, their contractors, and educational institutions. NTIS, on the other hand, serves the general public. DTIC handles restricted scientific and technical information, although you can order unclassified/unlimited information through DTIC if you're a customer. NTIS handles only unclassified and unlimited scientific and technical information. DTIC makes its unclassified/unlimited information available to NTIS which, in turn, makes it available to the public. So we work with NTIS; we give them the data that you tell us we can, but we do not work for them and we do not release data other than that that you authorize us to release.

To ensure that the restricted information that DTIC handles is released to qualified users only, users are required to regis- ter for our service. This includes completion of the DD Form 1540, which is a registration for our service and which includes a regis- tration of your interested fields. For contractors who want to use our classified information or to have a terminal, they must fill out a Facility Security Clearance, DD Form 1541. (See page 51-D)

We have on our system approximately 870 terminals on that DROLS system, which is the Defense RDT&E On-Line System. Of those

DTIC WUIS INITIATIVES

GOALS: INCREASE { EASE OF INPUT / EASE OF ACCESS / USEFULNESS OF DATA } FOR DEFENSE R&D COMMUNITY

MEANS:

OPTIMIZE INTERNAL DTIC ORGANIZATION

USE ADVANCED TECHNOLOGY

IMPROVE SUBMISSION / PROCESSING PROCEDURES

FACILITATE DECENTRALIZED INPUT

EXPAND DATABASE COVERAGE

51-A

"THE NAVAL INVESTIGATIVE SERVICE (NIS) EXAMINED THE
VULNERABILITY OF TECHNICAL INFORMATION IN THE DTIC
DATABASE, TO UNAUTHORIZED RECIPIENTS. THE RESULTS
WERE ENCOURAGING IN THAT NIS WAS SATISFIED THAT DTIC
FOLLOWS THE DOCUMENT DISTRIBUTION LIMITATIONS AS
PROVIDED BY THE DOCUMENT'S ORIGINATOR. ADDITIONALLY,
DTIC IS SUBJECTED TO NUMEROUS EXTERNAL SECURITY RE-
VIEWS. RECENTLY ITS ADP SECURITY PROCEDURES WERE
EXAMINED BY THE DOD SECURITY CENTER AT NSA AND FOUND
TO MEET DOD STANDARDS FOR CONTROLLING ACCESS TO THE
DATA BASE."

MEMORANDUM

CHIEF OF NAVAL MATERIAL

28 FEBRUARY 1985

DON'T MIX THEM...
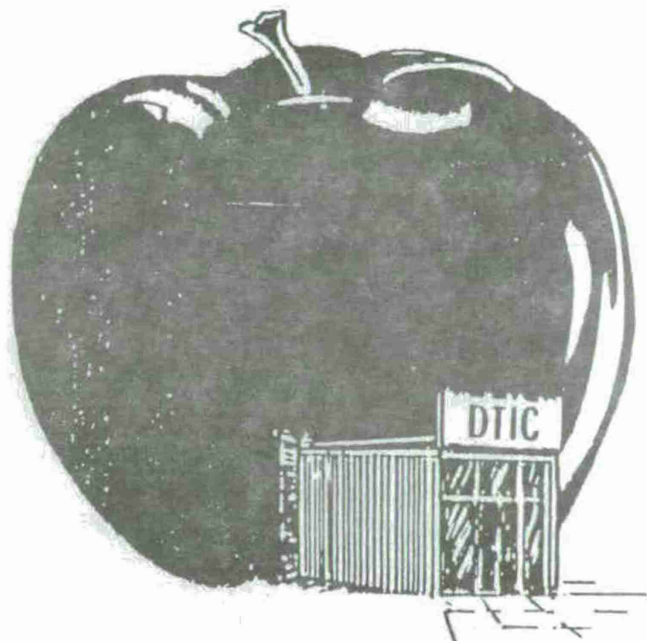
DEPARTMENT OF DEFENSE

- SERVES DoD...OTHER GOVERNMENT
  AGENCIES...THEIR CONTRACTORS

- RESTRICTED SCIENTIFIC AND
  TECHNICAL INFORMATION

- PROVIDES UNCLASSIFIED AND UNLIMITED
  SCIENTIFIC AND TECHNICAL INFORMA-
  TION TO NTIS FOR PUBLIC AVAILABILITY
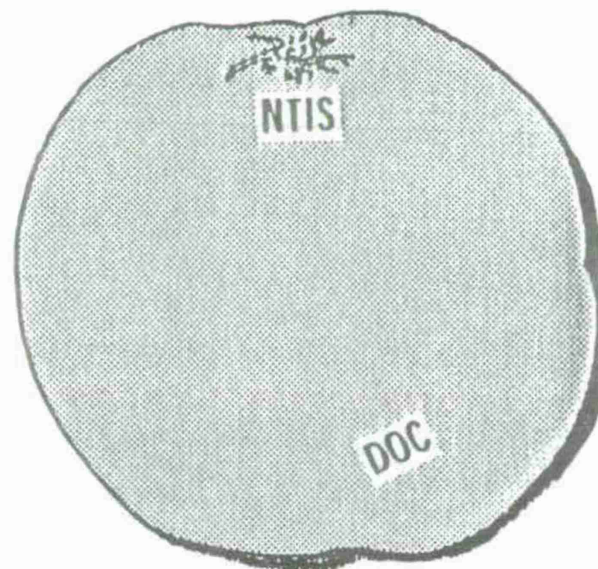
DEPARTMENT OF COMMERCE (DOC)

- SERVES THE PUBLIC

- UNCLASSIFIED AND UNLIMITED SCIENTIFIC
  AND TECHNICAL INFORMATION

- ACTS AS DTIC'S BILLING AGENT

DTIC REGISTRATION/CERTIFICATION

- USER COMMUNITY
  - DoD
  - OTHER GOVERNMENT AGENCIES
  - CONTRACTORS, SUBCONTRACTORS
  - GRANTEES
  - POTENTIAL CONTRACTORS

- DD FORMS
  - 1540
  - 1541
  - 2345

108 are classified, the rest are unclassified so they are going
into a database that handles multi-level and it handles it well.
Those that are classified must have all the security checks, they
must have encryption devices, etc.

We also have, as referred to this morning by Colonel Carter
and by Leo Young, recently implemented the export control systems
so that the registrants must first of all clear their registration
with a DD Form 2345 with DLSIE before they can get export control
data.

It's important to remember that a number of primary security
responsibilities, however, rest with others and not with DTIC.
(See chart, page 52-A)   Report originators and controllers are
responsible for assigning security levels and statements indicating
the levels of distribution. Those subjects that contractors need
access to in performing under a given contract are determined by
the contract monitors of the government; not by DTIC, but by the
Services, by DARPA, etc. What falls to DTIC, then, is to protect
and provide access to the information in strict accordance with
security-related decisions made elsewhere. As we modernize our
application, change computer and communications software, and im-
prove our procedures, we will continue to make security our highest
priority and assure that all security requirements are met. That
is probably the single biggest problem that we have in making re-
sponsive changes to user requests -- to make sure that we meet all
the security loops that we must adhere to to keep the data in the
closed community it's intended to be.

DTIC's ADP software and telecommunications security complexes
are very complex. Our ADP system is based on and approved on the
following building blocks. Our computer hardware is located in
a secure building under 24-hour guard with picture badge and keylock
control access. Our software programs to build files, search files,
and format outputs are home-grown, using all the things we need to
have obtained an NSA approval of our software security. Our work
areas where classified and limited documents are reproduced and
where bibliographies and reports are printed and mailed is also a
limited access area, also under 24-hour guard. Our extensive tele-
communications network is capable of monitoring the system of all
incoming and outgoing transactions, and our printed output products
are reviewed and monitored prior to and during the mailing opera-
tion. Our online system, DROLS, produces extensive logs, as well as
computer console messages to assure that we know the system status
and that the user connections are proper. All DROLS classified
terminals are to secure sites and protected locations and use the
NSA-approved COMSEC encryption devices to protect transmitted traf-
fic, and that's what was discussed this morning slightly by General
Babers on the KG-84s. We also, obviously, have the older devices.
We have multi-level sign-on procedures; we have menu-driven commands
so that people using the DROLS system cannot modify the system, they
can only use those predetermined commands. They cannot modify
master files. On online inputting, they put it to an intermediate

SECURITY RELATED RESPONSIBILITIES

ASSIGNING
- SECURITY LEVEL TO REPORTS
- DISTRIBUTION LEVEL TO REPORTS → REPORT ORIGINATOR/ CONTROLLER

APPROVING ——————— USER REGISTRATION
- GOVERNMENT CONTRACTING OFFICIAL
- HIGHER-LEVEL GOVERNMENT CHANNELS

DETERMINING
- USER CLEARANCE LEVEL ——→ DEFENSE INVESTIGATIVE SERVICE (DIS)
- USER SUBJECT AUTHORIZATION "NEED TO KNOW" CATEGORIES ——→ CONTRACTORS

- -

PROTECTING, PROVIDING ACCESS TO REPORTS ———————— DTIC
IN ACCORDANCE WITH ABOVE

52-A

file so that its processing through the files is free from people who would be called "hackers" getting into the system. It is not possible.

DTIC is currently engaged in several significant development efforts, including one that was discussed this morning by Colonel Carter slightly, the Defense Gateway Computer System. Its object is to try to make the availability of information online through many different heterogeneous databases. We can, right now, connect to DROLS, the DOE RECON, the NASA RECON system, a couple of commercial databases, BRS. We can simultaneously download those data from the very different databases which are in formats, on different machines. Download it to a separate process, allow manipulation in a post-processing way so that you can have a tailored bibliography, for example, of all the work that's done from all those databases to assure that perhaps there's not a gem of a good idea someplace else. This Gateway system, to me, is a building block of very powerful potential in the future. It is now beginning to be put into an operational prototype site. It is unclassified and handling unclassified information. We do, however, have a process being developed to work on classified information.

One of the things that we know the system has to do is be much more user friendly, so we're working on a command language that is common to all those databases. The system only gets you to a database; it will not go around the controls that are built into any database, but we would hope that you don't have to learn all the search strategies for all those different ones, but have a command language that is easier to use. We also are working to make it, if possible, a part of what is called an expert system with a database of databases so it can help you find the information you need if you're an authorized user for it.

The pursuit and implementation of technologies which advance the availability of information, however, is a two-edged sword, both to the U.S. and to others. On one hand, we need to make information available among qualified members of the defense community . . . our own interests. On the other hand, that information must be controlled if it is to be prevented from falling into the hands of adversaries, whether they're economic adversaries or political adversaries. And these adversaries have made evident their own realization of the importance of information advancing their own interests. Certain information is and should be made available to the public in the public domain, and this sort of information is made available through NTIS.

Other kinds of information, such as management information of R&D efforts and restricted information which results from those R&D efforts, should not be given over to the outside, and when that is decided, then the system must control that to whatever the authorized users would be.

So, you see, DTIC has a unique role to permit that control to be given throughout all of DoD -- have a closed community, yet have a lot of information sharing between those who are authorized to use it.

One of my concerns is that there is a growing number of foreign-held U.S.-registered companies acquiring ownership of online information systems, which shows in one way the value of information. It's a commodity that can be sold. BRS, by the way, which is the U.S.'s second-largest commercial database, is owned by a foreign interest. So here, DTIC can serve the purpose of getting the data out of commercial databases for you but still restrict that information that need not be put to the public by having our controlled system.

The benefits for the defense R&D community of searching DTIC's databases are substantial. The bottom line is that using DTIC's products and services increases productivity and can help bring a halt to this type of negative recognition. (See page 54-A) This recognition further endangers our ability, both DTIC's abilities and the Department of Defense -- to get the needed money to carry out our defense mission. Comparison searches for technical and planning information using manual methods versus our online searching by one of DoD's industrial partners shows that over 90% of the data needed by their engineers was found at DTIC; that the DROLS is useful in making competitor analyses, pre-request for proposals, RFP contract requirements, state-of-the-art awareness in unsolicited proposals; that literature searching time is cut to a minimum; that document ordering is reduced to a week or less, where it had taken months before. There's not only the value of getting the information you need, but there is certainly a serendipity effect by finding a lot more information than you ever knew existed that could help you. That firm said that certainly the time savings, using DTIC's online system, resulted in productivity improvements to them way above a ratio of 3:1.

DROLS might be better thought of as a lifeline for all of us who Naisbitt says are drowning in information. (See page 54-B) Reach out and use it. Stay on top of your information needs in the so-called sea of information. On the other side of the street, the databases are only as good as the information they contain. Timely, accurate, and complete input is essential. DTIC will continue to explore the rapidly emerging developments in information technology, and adapt those developments for use by the defense R&D community. DTIC will develop its marketing program to let people know the value of information and the reason they should input these databases. But we can't put the data in there. And just as the security responsibilities I mentioned earlier lie with someone else, so this lies with the data input. The time has come for us to step down from a soapbox and into the tub. It's time to stop talking about what needs to be done, and to get our feet wet doing it. At this conference, let's make sure that more gets done than said.

COAST-TO-COAST COVERAGE

"$32 MILLION IN DEFENSE RESEARCH RULED WASTE"

WASHINGTON TIMES, JAN. 7, 1986

"$33 MILLION IN WASTED MILITARY RESEARCH CITED"

LOS ANGELES TIMES, JAN. 6, 1986

54-A

ARTICLES BASED ON DOD OIG (AUDIT) REPORT ON THE AUDIT OF DOD LABORATORY CONTRACT STUDIES AND ANALYSIS (85-116)

WE ARE DROWNING IN
INFORMATION BUT
STARVED FOR KNOWLEDGE.

NAISBITT

We can handle some questions. I would like to say also that
we have many people from the DTIC staff here. We have had severe
budget restrictions this year, but I thought this was of such value
that we have a lot of people here, so we have people who can answer
questions correctly, as opposed to having me answer all of them.
So if you have any questions, I'll try to answer them or we'll have
somebody who can.

Question -- cannot be heard

Mr. Molholm

The question is whose responsibility is it to feed the work
unit information system, and how are we going to assure that it is
more timely filled.

First of all, it is the responsibility of various labs and
organizations to fill the work unit. Mr. Bill Thompson, who is
speaking tomorrow afternoon is a DTIC Director of Database Services
and has been working with a work unit information system focal
point group whose job is to try to figure out a better way of making
the work unit more complete, the data more useful, better input to
it, and to revise whatever DoD instructions are needed. So it's an
ongoing task and one that's coming very close to fruition that we
can begin to implement a better system than the one we already have.
We are also, as part of our new organization on analysis and manage-
ment of databases, developing a system so that we can at least go
back to the various different organizations responsible for filling
up the work unit file to report on them from our standpoint and
say, "apparently you're not filling here," or "here's where your
problems are." We don't have a good correlation of how many work
units you should have from any contract, but we can give some basic
statistics to say that apparently we have a problem. So that's
part of our new thrust, too -- to be a little more aggressive in
telling people that we have a problem, and let's work together to
solve it.

Question

You referred twice to a database called BRS. What is it?

Mr. Molholm

BRS is a commercial database service. It's Bibliographic
Retrieval System.

Question -- cannot be heard

Mr. Molholm

Theoretically that's supposed to be true. That comes back to
the contracting officer or the administrative contracting officer.
Let me be brutally frank in that area. For many years I was a

computer system programmer or system designer, and I can relate very much the least important thing or least interesting thing to you is the documentation associated with your program. You do everything and that's the last thing you do. Well, let's face it. That's exactly what we're talking about here. It's the thing that occurs after you've done all the good glory stuff, and it's not, I think, the highest thing on the contracting officer's agenda. We have tried to strengthen the provisions of the FAR to make it a more stringent requirement. We've not been successful in doing that. This is again what we'd like to do in the education, because there's a lot of value to that. As we are finding in data systems now, we can't correct all those ones we screwed up 20 years ago because we don't know what they have. The analogy exists here, so part of it is through education. The fact is now the requirement is there; now we have to have it enforced. That really is true with some of the other databases, too.

Question -- cannot be heard

Mr. Molholm

The first question, yes, we have a controlled vocabulary. A new one will be published very quickly. Bill Thompson says it's April of this year.

The second question has to do with full-text searching. Let me clarify that to a point. On our technical report file we only have abstracts and bibliographies; we don't have a full text to start with. So when we talk about full text searching, are we talking about full-text searching of those abstracts? We are doing some work in that area. When you talk about our system where we have 50,000 or 60,000 searches a month on that system, we're talking about some massive machine times and some resource availability. We do constantly look for better packages, and we have, just in the past two months, taken a look at some other full text retrievals. We have an active program to improve our technology. One of the functions of DTIC, by the way, in addition to being a central library and an information source, is a technology R&D program. We're actively looking at better ways to serve our customers, or in fact for the DoD libraries, even though they may not work for us, to do their job better. So yes, we're looking at full text, but there's a lot involved in terms of resource utilization and other things. We have a relatively good searching capability right now, though.

Question -- cannot be heard

Mr. Molholm

The substance is about the same as with any other work unit. Points of contact, a summary of what's going on, the technology areas being thrust, and things of that nature. It is part of the result of the whole IR&D thrust by a company to obtain DoD support

and funding for their IR&D, so it's the information that's gone through the system to know that. A summary of it, as I say, technology thrust, etc.

Mr. Saunders

Our next speaker, Major General Donald Lamberson, is currently the Assistant Deputy Chief of Staff for Research, Development, and Acquisition, Headquarters, U.S. Air Force, Washington, DC. General Lamberson received his bachelor's degree in chemical engineering from Purdue University, a master's degree in nuclear engineering, and a doctorate in aerospace engineering, both from the Air Force Institute of Technology. General Lamberson has been with research and development through much of his career. He became Deputy Assistant for Directed Energy Weapons, Office of the Under Secretary of Defense for Research and Engineering, in April 1982. He served as a focal point for the President's Initiatives on Defense Against Ballistic Missiles, and he assumed his present duties in October 1983. His military decorations and awards include the Distinguished Service Medal, Legion of Merit, Air Force Outstanding Research and Development Officer Award, and the Air Force Association's Citation of Honor. General Lamberson.

Major General Donald L. Lamberson

Thank you very much, and good afternoon. It's a pleasure to be with you this afternoon at this ADPA meeting. I'd like to start off by giving thanks to Mr. Mick Flynn and Mr. Walt Blados for assembling the remarks that we're going to be going through this afternoon. Furthermore, thanks to Mick Flynn for flipping the charts down here as we go along. And furthermore, thanking him -- as you can tell, my voice may or may not hold up here, afflicted as perhaps several of you are with the flu -- if I get in a coughing spell, Mick will just take right on over and you'll get it from the real source. And furthermore, my thanks to Mick for answering all the questions that you're going to pose.

Now that we know what my function here is, let us proceed to discuss what I think is the important topic that you've all come to come through, namely, how is it that we share information on the R&D planning process. If I had to sum from the very beginning, as I will do again at the end, it would be to say that in a sense it's like marriage, or maybe like our whole of R&D -- you can't live with it and you can't live without it. We're going to see many features which make absolutely imperative the sharing of technology information, and yet we see many features which preclude that sharing in many different formats. We see the current budget environment as not being healthy in the sharing of that technology information, and so I think your conference comes at a very important time because to those people who consider the support of this kind of information on the frill of the mainline thrust of research and development in the Services, those frills are rapidly disappearing.

I'm going to try to convince you that that's not the way we view it in the Air Force research and development, but that's not to say that there will not be impacts as we go along.

The first slide (see page 58-A) tends to indicate where I think we are. That again, the positive aspects are that this is certainly essential to the readiness of the Air Force. The technologies we recognize developed in the civilian side of our industry, many have great and deep applications to the military and vice versa, and we certainly endorse and encourage the interchange of information between civilian and military sectors, and that is, after all, what we're talking about this afternoon. We also recognize that in the planning activities that you do in your own company-sponsored research or in your IR&D, that Air Force requirements or, on a broader basis, Service requirements form the basis of your investment strategies into that research and development program. And so there is absolutely no question, not only for efficiency but in looking at the total dollars in the United States that are going into military-related research and development, that it is absolutely in our best interests to have information that is relevant to you reflecting requirements as we see them so that you can base your research programs around those requirements. That comes up in many, many different contexts. It came up again this past fall when there were attacks made on the IR&D budgets and the defense which rallied around that point and which was ultimately successful dealt with the notion that what you do under the IR&D base is so important, such an important element of defense research and development that we cannot let it significantly erode, and therefore, if we cannot let it significantly erode, neither can we afford not to provide you the information upon which to make wise and intelligent investments.

So the positive side is real and strong, and as a result of that, I feel confident in discussing with you for the rest of the speech ways in which we will try to enhance the information sharing in research planning that is the theme of this conference.

On the other hand, there are the negative aspects that I don't need to enlarge upon. You could read it in this morning's Washington papers. You can read it almost every morning. There is clearly, especially since Secretary Weinberger has made it evident about three months ago, a concerted drive by our enemies to exploit our technology databases. There is absolutely no question about that; the proof is incontrovertible. That goes all the way from penetration of our unclassified databases, upon which we are studying right now what to do about that -- it's not terribly obvious what to do about that, up through and including the classified information files in espionage penetration. It's a serious threat and it is that threat which causes the restrictive natures and creates the other side of the balance that says, "wait just a minute -- we're not so sure that we can put all this information into a database under the current conditions." There's not an easy solution to that, but it's real and so we might as well deal with it. So that

DOD/INDUSTRY INFORMATION EXCHANGE

O   ESSENTIAL TO READINESS OF USAF

O   TECHNOLOGIES DEVELOPED FOR CIVILIAN APPLICATIONS HAVE

    POTENTIAL FOR APPLICATION IN MILITARY

O   ENDORSE AND ENCOURAGE INTERCHANGE OF INFORMATION BETWEEN

    CIVILIAN AND MILITARY SECTORS

O   USAF REQUIREMENTS FORM BASIS OF INDUSTRY IR&D

    TEMPERED BY

    o   CONTROL OF CRITICAL MILITARILY TECHNOLOGY

    o   PROTECTION OF CRITICAL DEFENSE INFORMATION TO UNAUTHORIZED

        RECIPIENTS

    o   CONTROL OF INFORMATION TO PREVENT UNFAIR COMPETITIVE

        ADVANTAGE

    o   COMPLIANCE WITH ESTABLISHED LAWS/REGULATIONS/SYSTEMS

has to do with the bottom of the chart -- tempered by the control of this critical technology that we deem to put under the military critical category. The release of that information to unauthorized individuals, and then all the internal problems of unfair advantage, quid pro quo analysis, etc., etc.

I mentioned the budget at the beginning, so I should probably, although it's not a bullet on the chart, go ahead and simply say that I know that you know how Gramm-Rudman and, for that matter, other undistributed budget cuts are being handled within the DoD, and basically those are being handled as a percentage cut against each program, each thing that is defined as an individually packaged program, which in general relates to a program element. So the option does not exist within the Department to prioritize its programs and eliminate programs that are in the Department's view less productive and therefore keep other programs at full funding value. That is not an option. The implementation is more or less, with only minor variation, reduction by a percentage amount of each particular program element. When you do that, you make the kind of information and the kind of services which result to a program manager -- we tell a program manager, "you've got the same job to do; you've just got 4% less money to do it with." It becomes easiest for him to solve his problems by going to those things which contribute least to his near-term -- and I emphasize near-term -- problem. That may be conceived as some of the information services which he is required by the various regulations that we have to provide. All I'm suggesting to you is that we are in an era in which it is going to be easier for program managers and acquisition authorities to say, "I can't comply with all your rules about sharing information and still take 3% after 4% after 6% undistributed allocations." It's our business to try to protect that, but the effects are real, so you should anticipate increasing pressure in that regime.

Let me get off the sour notes now and get on to why we think that we're doing a reasonably fair job of cooperating with industry through these offices called the Air Force Information For Industry Offices. (See page 59-A) Hopefully, most of you are familiar with these. There are currently three in number. By the way, we're going to be, I hope, saying some things that are interesting to you and perhaps even controversial this afternoon. If you reflect on that overnight, we really would appreciate some feedback. The other thing that I should have said is that Mr. Mick Flynn will be our representative to the panel tomorrow afternoon. That would be an excellent place to give us some feedback or other ideas that you may have about how the Air Force could get its act together a little better in this particular area.

On the screen you see the three offices that come under the heading of Air Force Information For Industry Offices. We are currently considering whether there should be more or not. Should there be one in the New England area, etc., etc. Again, some of that would have to be reflected in the budget environment that I

USE OF AFIFIOs BY INDUSTRY

	1984			1985		
	VISITORS	POTENTIAL CONTRACTORS	CONF ATTENDED*	VISITORS	POTENTIAL CONTRACTORS	CONF ATTENDED*
ALEXANDRIA	425	50	6	500	50	8
WPAFB	1020	10	7	955	12	3
PASADENA	425	40	4	500	50	3

*TO PUBLICIZE SERVICES OFFERED BY THE AFIFIO

already alluded to. But we think that these statistics show that
we're doing a credible job and that these offices are being used.
Now, there is no question in my mind, as I look at those numbers
and say, "yes, but they could be used a lot more." The question
is, why aren't they? To the extent that that's Air Force responsi-
bility in either not having the right information or not having
timely information or not having it in the right form or you not
being aware of it, then that's something that we need to work on.
But at any rate, these offices are information offices where indus-
try can review and discuss current and future research and devel-
opment plans and programs. They deal primarily with planning docu-
ments for the development of future projects, so it seems to me,
particularly for this symposium here, that this aspect of informa-
tion sharing is probably the most important compared to the things
that we're going to talk about a little bit later. It is a mecha-
nism for both classified and unclassified information, science and
technology objectives, other planning documents relative to your
planning requirements. So we think that it's a pretty powerful
way to make information available, particularly available to those
who may not have been doing business with the Air Force in the
last 30 or 40 years and need a quick way to get into the scheme
of how things are going in a particular technology area.

The next chart (see page 60-A) shows some of the documents
which are in those Information Offices, and again, you'll note the
emphasis here on planning documents. You'll see, for example,
the top couple -- exactly the things that we send to the Congress.
You have the descriptive summaries and the RDT&E and RD-5 exhibits,
which therefore is the planning information that would be sent to
our Congress, and on and on. About the sixth bullet down --
Vanguard I hope you recognize as the major development planning
activity at our Air Force Systems Command at Andrews AFB, so that
Vanguard, then, becomes the most condensed place that one can find
a description of how a project so-called "hooks and strings," how
it fits into a particular application. I don't suppose there are
any of us that would doubt that if we had all of that documenta-
tion and it was current in a single place, that that would provide
a very useful resource. I'm sure that the argument back is going
to be yes, but it's never there when I want it, and it's always
out of date. Those are things that we can talk about and we're
aware of that, and in fact, the next chart (page 60-B) is going to
indicate that we do have some initiatives for trying to make this
a more relevant activity. We are constantly seeking classes of
information that we can task our program units and our laboratory
units to make available, hopefully without having to generate
another piece of paper. We are trying to make sure that all of our
organizations are in compliance with the pertinent regulations
which say that this information should be provided. And as I indi-
cated, we're investigating the feasibility of expanding the numbers
of offices or perhaps the staff at those offices to help you if
it were warranted. We're even looking at the possibility of making
it more specifically adapted to the procurement process. That is,
by having access to complete RFP packages. So in short, we are

DOCUMENTS IN AFIFIOs

O PROGRAM ELEMENT DESCRIPTIVE SUMMARIES

O RDT&E RD-5 EXHIBIT

O STATEMENT OF OPERATIONAL NEEDS

O PROGRAM MANAGEMENT DIRECTIVES

O JUSTIFICATIONS FOR A MAJOR SYSTEM NEW START

O VANGUARD PLANNING SUMMARY

O TECHNICAL OBJECTIVE DOCUMENTS

O AIR FORCE LOGISTICS RESEARCH AND STUDIES

  PROGRAM

O MANUFACTURING TECHNOLOGY PROGRAM PLAN

O TACTICAL AIR FORCE INTEGRATED INFORMATION

  SYSTEMS MASTER PLAN

O TACTICAL C^2 IMPROVEMENTS PLAN

O TECHNOLOGY PLANNING GUIDES

O AVIONICS MASTER PLAN

O ARMAMENT AND AVIONICS PLANNING GUIDANCE DOCUMENT

O AVIONICS PLANNING BASELINE

O ELECTRONIC COMBAT ACTION PLAN

O MILITARY SPACE SYSTEMS TECHNOLOGY MODEL

INITIATIVES FOR AFIFIOs

O EXPAND PLANNING DOCUMENTS/INFORMATION

O ENFORCEMENT OF DIRECTIVES

O EXPANSION OF OFFICES/LOCATIONS/CHEMICAL ASSISTANCE

O INTERACTION AND SERVICES FOR PROCUREMENT, E.G.,

   RFP PACKAGES IN CENTRALIZED CENTERS

O AWARENESS/EMPHASIS IN FIELD

attempting to increase the awareness and emphasis in our field activities so that your field activities may find this a more useful process.

Let me leave these Information Offices now and go to the next topic, the Work Unit Summaries, which I understand was the topic being discussed as we came in. (See page 61-A) This is a very important aspect of information sharing. However, it seems to me that it's less important to the research planning activity than the things that I've just discussed. After all, work units are things that are in progress, not things that are planned. Nonetheless, work units, particularly at early stages of research and development, can indicate planning and so we recognize their value, and so we expect to continue to participate quite fully in the DTIC Work Unit Summary database. It provides a rapid exchange of technical and management data, and we intend to continue with that. You see there the latest figures that we've been able to get last month in December about Air Force inputs into the work unit base, and without pointing the finger, we believe that we're doing pretty well in the delinquency rate, although I'm told that we might not look quite as good in January. Again, we are pursuing some initiatives to try to improve our responsiveness to the work unit base, and that's itemized on the next chart (see page 61-B). One thing we are changing which is having a negative impact immediately, but we think ultimately may be positive, is the way that we provide information to DTIC. We have for years done that through the MASIS formulation that was centralized at our Air Force Systems Command headquarters at Andrews. That is to say, however the laboratory or the work unit generator provided his information to the headquarters, the headquarters had a big computer in the sky which translated that all into the right format to go into DTIC, and that's the way it ended up, although it might have been there later than you wanted it. We're not going to do that any longer and are going to insist on direct translation from our operating units into the DTIC work unit summary. Now, that's good in the sense that when it works it should get there faster. It doesn't have an intervening headquarters to go through. In the near term, though, it's bad because not all the software is compatible to start with, so that even if all the laboratories had the eagerest beaver in the world trying to do that -- and they don't all -- there would be problems in having software compatibility to feed into DTIC. That's of course a solvable problem and I'm told that we're about one-third of the way through solving that.

The other problem that I perhaps irreverently refer to is the fact that not all of our laboratory information officers have the same degree of initiative and job accomplishment to make sure that they get their information into this data base. So we are now more dependent upon more people at a decentralized function providing information which should be available for you. So we're going to have to watch that, and we recognize again that there are both plusses and minuses to that.

WORK UNIT SUMMARIES RECAP

	TOTAL	AIR FORCE
ACTIVE UNITS	27,000	7,000
DELINQUENCY RATE	25.7%	5.8%
INACTIVE UNITS	158,000	43,000

61-A

INITIATIVES FOR WORK UNIT SUMMARIES

O   DIRECT INPUT BY ORGANIZATIONS

O   WORK UNITS FOR EVERY CONTRACT/PROGRAM ELEMENT

O   QUALITY CHECK OF INDIVIDUAL WORK UNITS

O   ENFORCE END PRODUCT DELIVERY

O   CLOSER MONITORING

O   AWARENESS/EMPHASIS IN FIELD

The other thing that we're going to do is to examine the work unit bases, as you see there, to make sure that there are work units for every program element contract. That is that there is a fidelity between what the work unit data base says there is and what we think we have approved from the headquarters in terms of a given year's activity. Again, another accounting check that we want to do. In addition to that quantity check, we want to do a quality check and, as a matter of fact, have a program with Hughes Aircraft right now to help us with that. Does the dollar figure that's shown, does the information that's on the work unit relate to what really is there? Are you getting accurate information through the work unit process?

We'll also be looking at a legitimate end product delivery. That is to say whatever that work unit involves, then the end product needs to be consistent with what we think that we have funded and justified to the Congress so that you can legally and reasonably anticipate the right product. We'll be monitoring this now, particularly as we have changed our procedures, more closely from the headquarters and pointing out the discrepancies to our responsible organizations. You may already have some comments about how this may or may not work, or ideas on how we can implement it better. We'd be glad to hear those in due course.

Finally, let me go to the end product, or at least the end product of so many research efforts, the technical reports, and again show you some statistics, the latest figures from DTIC indicating Air Force submission of technical reports. Again, I can't attest to the completeness of our input, but again, as in the work unit summaries, something that we want to monitor a little bit more closely. It looks to me, obviously, like it's been essentially constant over a large number of years, and I don't know whether that's an accurate reflection of what's really been generated out there or whether it's a reflection of who's been good about sending in their reports. (See page 62-A)

So we'll start again cross-checking the work units which indicate that a technical report is to be the product, whether this deliverable ends up. (See page 62-B) It should be a rather straightforward accounting procedure. Furthermore, we're going to get faster turn-around times, again by this direct procedure, from the time that an effort ends until the time the technical report is submitted. That may be whistling Dixie, but that's what we're going to try to do. We currently have a maximum six-month period to do that. We're going to try to do better than that. We'll be monitoring more closely the technical reports program as it is established here, and again, bring discrepancies here to the responsible organization. In short, the whole notion is trying to increase the awareness now at a decentralized level to people that are actually generating that information in the field of the importance of following the regulations that we have laid upon them, the guidance that we have laid upon them, to get to the right place at the right time.

TECHNICAL REPORT INPUT RECAP

	TOTAL REPORTS INTO DTIC	USAF REPORTS INTO DTIC
1981	31,200	7,000
1982	30,100	7,700
1983	30,000	7,200
1984	31,400	7,100
1985	30,800	6,700

INITIATIVES IN TECHNICAL REPORT PROGRAM

O   CROSS CHECK WITH WORK UNIT SUMMARIES

O   FASTER TURNAROUND

O   CLOSER MONITORING

O   AWARENESS/EMPHASIS IN FIELD

There are, in addition to that, some other initiatives that are across the board in trying to increase this awareness. (See page 63-A) We will certainly support the research and development planning information management section of ADPA, which is, of course, the basis of what we are doing right now. I understand that the mechanisms have already been nominated to support those particular efforts. We'll strive again to enhance the quantity and quality of our work units, as well as the technical reports; work with your organization here, the ADPA, to get those things done and work with industry in the annual STINFO (scientific and technical information) conference.

Finally, we look forward to the conference results that will result from this, and your perceptions of commitment and management and what you would like to see being done differently, and what it is that we can change, and indeed your views of whether we're even in the right direction or not. And we intend to pay strong attention to the information that comes from this meeting and from the work groups. That's why we have supported it with a number of our people from Air Force Systems Command and from the headquarters. (See page 63-B)

I want to wish you good luck in the remainder of your meeting and again, we want to be sensitive to the needs that we both have to stretch what will increasingly become, at least in the near term, a scarce resource, whether it's IR&D or whether it's government sponsored, in the research and development tech base for the future of our defense activities, because I think we are otherwise in such a dramatically improved opportunity for technology application. As we look at the technology opportunities across the board in the Air Force today, from electronics to propulsion to the bio-physics to the computer sciences, there isn't an area that we look at that we don't see great, enormous strides in applications to be made in the next decade or decade-and-a-half to the year 2000. I think we are approaching an extremely significant period of time and you see some of those in the new starts that have been talked about even in the last few weeks -- the new Air Force initiative joined in by many other agencies on the national aerospace plane, with the unfortunate additional focus of the last couple of days with respect to the Challenger accident. But that's all possible because of a whole new class of technology which was sponsored exactly by the tech base efforts that we're talking about here and shared in ways that other people could build upon those results. That's what we're talking about. We're talking about doing it in a tougher environment, and so we must talk about doing it more efficiently and yet getting that information to where it needs to be and keeping it from being where it should not be.

Thank you very much.

INITIATIVE TO SUPPORT R&D PLANNING MANAGEMENT

O   SUPPORT ADPA RADPIM

O   ENHANCE QUANTITY AND QUALITY OF WORK UNIT INPUTS TO DTIC

O   ENHANCE QUANTITY AND QUALITY OF TECHNICAL REPORT INPUTS TO DTIC

O   COOPERATE WITH ADPA RADPIM TO IMPROVE OVERALL UTILIZATION OF

    DTIC ON-LINE DATA BASE

O   COOPERATE WITH ADPA RADPIM TO ESTABLISH VALID COST/BENEFIT OF

    TECHNICAL AND PLANNING RDT&E INFORMATION

O   INDUSTRY PARTICIPATION IN ANNUAL STINFO CONFERENCES

CONFERENCE RESULTS

O   INDUSTRY PERCEPTION OF COMMITMENT AND MANAGEMENT
    OF PLANNING INFORMATION WITHIN DOD

O   INDUSTRY PERCEPTION OF COMMITMENT AND MANAGEMENT
    OF PLANNING INFORMATION WITH CONTRACTORS

O   REVIEW AND ASSESS RECOMMENDATIONS RESULTING FROM
    THIS MEETING

O   REVIEW AND ASSESS COMMENTS/IDEAS/RECOMMENDATIONS
    FROM WORK GROUPS

Question -- cannot be heard

General Lamberson

There are many questions which I shall be glad to answer. One of them does not include the United States Navy!

Question -- cannot be heard

General Lamberson

The Forecast II should be released and discussable hopefully in the February kind of time period, and that's a good point. At the risk of anyone not knowing what Forecast II is, Forecast II is an initiative by our Air Force Systems Command, specifically the Commander of Air Force Systems Command, to repeat in current generation what ended up being one of the best planning exercises the Air Force ever had in 1970-71-72, the original Forecast by General Shreever, and so that exercise is coming to a head now over at Systems Command. They're just starting to brief the results inside the Air Force, and the notion of that is to lay a cross-matrix of the technology opportunities, some of which I alluded to, in all fields against the requirements as Systems Command hopes that they see them and which is why they've had the operational commands of the Air Force involved, and to then try to come out of that with a sense of prioritization in which enabling technologies and critical technologies are most important to pursue in any kind of a budget environment, and certainly the tougher the budget environment the more important it is to have a sense of priority about what those enabling technologies may be. Without saying what the result of that may be, because no one knows, I would guess that to the extent that you will see Air Force laboratory directions changing over the next few years, it can pinpoint as much, focus as much back to the results that you'll hear in the next several months from Forecast as any other single activity.

Mr. Saunders

Our next speaker is Mr. Mike Flemming. He's with the National Security Agency. He'll be talking to us about the COMSEC revolution. Prior to being at the National Security Agency, Mr. Flemming was with Delco-Ramie Division of General Motors, so he's got experience with both industry and government. Recently, Mr. Flemming has been selected to establish and head the newly-created Office of Industrial Relations. This office is responsible for directing activities associated with securing U.S. industry communication and fostering partnerships between the COMSEC organization and the U.S. telecommunications industry to bring about the large-scale availability of secure COMSEC products. Mr. Flemming has a Bachelor of Science degree from Purdue University, a Master of Administrative Science from Johns Hopkins.

Mr. Mike Flemming

Thank you and good afternoon. I welcomed the opportunity to come down and represent the National Security Agency in front of a body of industry/government participants because, as you will see as I go through the talk this afternoon, we have to a large extent come out of our shell at NSA in terms of communications security, as well as computer security, and in doing so want to form a much tighter bond, much tighter merger with the telecommunications industry toward the achievement of more secure communications. So the message I give to you today, the COMSEC revolution, is in fact an endeavor to do just that.

Some of you may have either heard this talk before or heard a couple of other terms for this, so let me square that away. This is also known as the COMSEC In Transition Program, and some have coined it a new way of doing business. It is a new way of doing business at NSA. It's not so new to the way the rest of the American telecommunications industry does business, however, so while it's new to us, it should sound like the way things have always been in industry. We call it the COMSEC revolution because (a) it is, in fact, a revolution, and (b) because when General Odum appeared onboard and received this briefing, that's what he called it. So we can go along with that!

The objective is simple. (See page 65-A) The previous Deputy Director for COMSEC summed this up in two words and I'll use those two words: ubiquitous COMSEC, and essentially, that's what we'd like to see. The hemorrhage of information in this country is too severe and the consequences too large not to have ready access to secure communications. And by ready access, I mean on your desk. At your work station. Not in the closet, not down the hall where you have to go find a secure telephone and search it out, but by putting secure communications right with you as you conduct business. In a nutshell, ubiquitous COMSEC is the target.

Now, a very, very tall order and this is not to be a complete, exhaustive list of what's going on in industry today and what has been going on, but it is to say that the world of telecommunications today is rapidly changing and a far cry from what it was just five years ago. (See page 65-B) Therefore, achieving that kind of communications security objective is a very, very tall order and it's getting taller by the minute. Two points to make here. The first point is the volume of information moving in this country that is classified and sensitive is increasing dramatically because of what you see here. Secondly, because of the power of some of these instruments, the value of that information is also increasing. So this is presently a double-edged sword. More information that is of greater value. Now for you, the executive, who wants one-page analyses of tough problems so you can make snappy decisions, that's wonderful. For the adversary, he also likes that one-page analysis of tough decisions because he knows where you're going. So the double edge of volume and value is a fundamental problem that we're trying to achieve.

COMMUNICATIONS SECURITY

OBJECTIVE

MAKE COMMUNICATIONS SECURITY (COMSEC) AN INTEGRAL PART OF

THE TELECOMMUNICATIONS SYSTEMS EMPLOYED BY ANYONE DEALING IN

U.S. CLASSIFIED OR NATIONAL SENSITIVE INFORMATION

U.S. TELECOMMUNICATIONS EXPLOSION

o   PERSONAL COMPUTERS

    o   LOCAL AREA NETWORKS

        o   DISTRIBUTED DATABASES

            o   CELLULAR RADIO

                o   PACKET RADIO

                    o   SATELLITE TELECONFERENCING

                        o   ELECTRONIC MAIL

                            o   PRIVATE CORPORATE MICROWAVE
                                    AND SATELLITE SYSTEMS

                                o   ELECTRONIC FUNDS TRANSFER

                                    o   TELEPHONE DEREGULATION

The way we'd like to go about that is to, in fact, merge two expertise. We, the cryptologists of this country, feel very confident and are very self-assured that the cryptology we have is the best that need be, and we have all the confidence in the world of that. Where we need to bring about a merger is in the area of implementing good cryptology -- low cost, user friendly -- to bring about the requisite COMSEC revolution to stay with the telecommunications revolution. So the merger is, in fact, our expertise with qualified members of U.S. industry and their expertise in bringing about high-volume, low-cost, good communications capability. So we'd like to bring to the table those two disciplines, merge them toward a secure communications capability explosion, if you will. And what I'd like to describe in sort of a three-tiered fashion, if you will, are our view -- and I solicit, certainly now and in contacting us later, your view in how we might best achieve this.

I can break the revolution into three distinct components. (See page 66-A) They are very interrelated, however, so while they're distinct in one sense, understanding the totality of what we're doing really takes some patience in understanding each of the components and how they interrelate. The physical form of a communications security function I call COMSEC embodiment. The relationship between the buyer and the seller of a secure communications capability -- business relationship. And finally, some dramatic changes in the way we're going to control or prescribe the controls for communications security. I think those of you who have been involved in COMSEC will see the dramatic component when I get there. I'll take you through these one step at a time.

Let's back up and refresh ourselves about what the COMSEC function really is, and it's really very simple in its high order look. The rendering of plain into cipher text, such that only the intended recipient of the cipher text is able to bring it back to play. That's perfect security. (See page 66-B) We do that really by summing two functions. One I'll simply call the encryption algorithm, which is a fixed piece in the system; the second I'll call key, which is a variable piece in the system. It takes knowledge of both the algorithm and the variable or the key to get access to cipher text. Consequently, we have built our system such that I can distribute many, many, many COMSEC units all alike, but adjust those on an aperiodic basis and a very frequent basis by adjusting the key that goes along with it, and in doing so, retain cryptographic integrity of the cipher text even though I may have lost an encryption unit or an algorithm, the COMSEC unit, because I have retained (a) tight control of that key, and (b) even if I've lost it I've changed it very frequently, so it takes access constantly for the changeable element called key. In sum, the COMSEC process is really, in its simplistic view, the sum of two elements; an algorithm and a changeable element called key. Keeping that in mind as we go through this will clearly help the understanding of what we're trying to say.

NEW APPROACHES MUST ADDRESS

o COMSEC EMBODIMENTS

o BUSINESS RELATIONSHIPS

o DOCTRINAL CONTROLS

COMSEC PROCESS

COMSEC UNIT

ENCRYPTION
ALGORITHM

PLAIN
TEXT ←→

SECURITY
INTEGRITY
FUNCTIONS

CIPHER
TEXT ←→

KEY MANAGEMENT

KEY
(A VARIABLE)
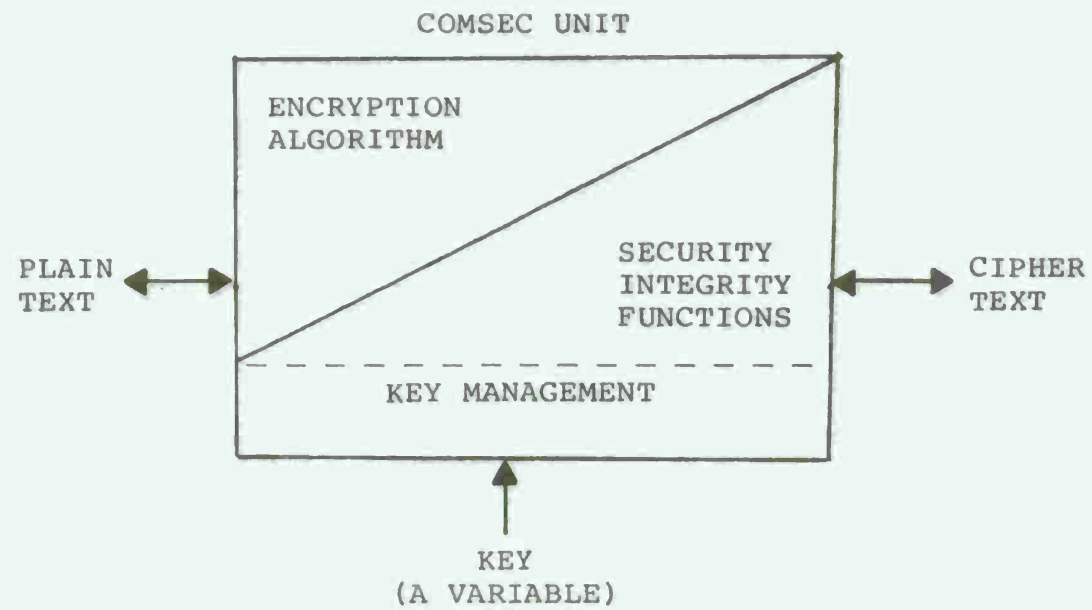
Where have we classically performed that function in the past? Not necessarily 100%, but predominantly, we placed the encryption unit, the COMSEC unit, with its key in series with the device that the human is going to move information with or process information with. I've shown a PC, but that could just as easily be a radio, and the telecommunications media itself -- fiber, cable, satellites, microwave, local area networks, etc., etc. (See page 67-A) Now, that fundamentally has a couple of significant drawbacks. The first drawback is what I call raw materials cost. The fact that I have a stand-alone unit there brings upon itself a life and a sustenance of its own. It needs power; it needs a chassis; it needs interface cables to the telecommunications media, as well as the host device itself. So there's a material cost there that if I lead you slightly to my conclusion, I'll point out ways I can save that cost.

Secondly, subtly -- much more subtly, but I think just as important -- it sits there somewhat as an optional unit in this system. That is, I can perform the mission of moving information down that media and back without really having the COMSEC unit there. I can fulfill the mission. I may become very vulnerable if I do it that way, but so be it. Me, as a mover of information, that's my first priority -- move the information. People tend to think of security second -- or third or fourth, maybe never. Therefore, optional COMSEC, in our experience, is not used COMSEC. Hence I've got a transparency problem. It sits there kind of optionally and I'd like to make it not so optional, so that it's sort of there whether I know it or not. So I've led you to a conclusion that says when we can, when the system allows it, when the technology allows it, and it's getting easier because as computers have gotten smaller, so has the ability to build good encryption, I'd like to embed that keyed COMSEC unit. (See page 67-B) Make it an integral part of the telecommunications device that it intends to protect the information of anyway. And in doing so, attack both of those disadvantages that I pointed out a minute ago: I now have an integral unit, I'm not sustaining a separate device. I no longer have a chassis. I've probably been able to borrow host power. I've simplified the interface. In fact, I can standardize on that and I'll point out how we're going to do that in a minute. So I've saved raw materials cost. And secondly, and just as importantly, when a soldier grabs his radio and goes to the battle-field, he grabs a secure radio. He doesn't have to also think about grabbing a separate COMSEC unit. When the executive picks up his telephone and makes that sensitive call, that classified call which he intended to talk around, he's secure. When you use the personal computer and send something into E-mail and back, it's secure. COMSEC is there as another function like a power supply or a synthesizer or a modem or any of a host of other functions that's in that device itself. So I have reached a degree of transparency that is (a) more cost effective, and (b) much more user friendly. So that's the technique that, where we can, we're going to strive for.

STAND-ALONE COMSEC APPLICATION

TELECOMMUNICATION MEDIA

KEYBD
COMSEC
UNIT
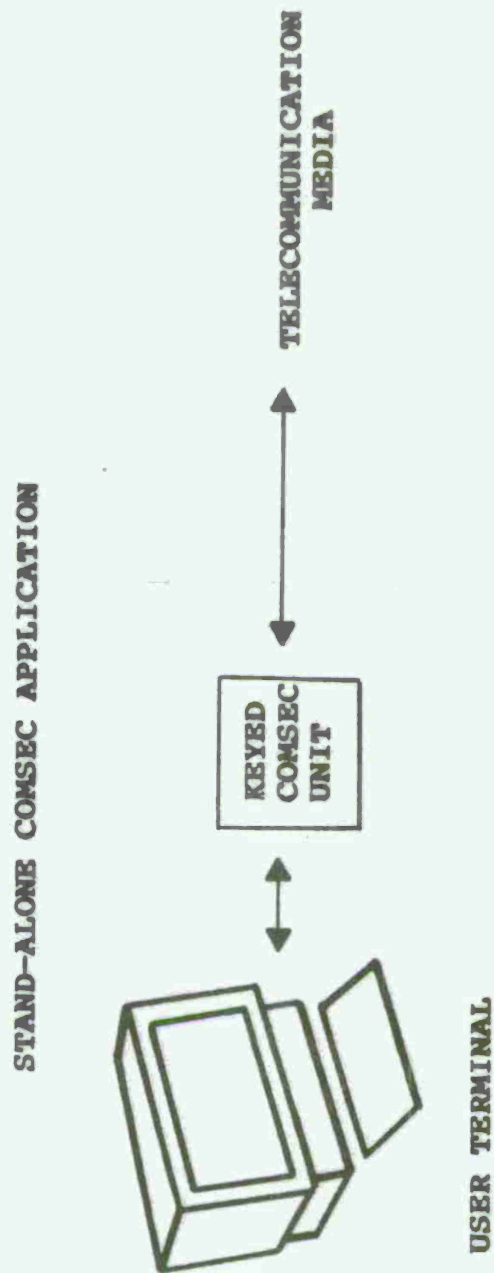
USER TERMINAL

EMBEDDED COMSEC APPLICATION

KEYED
COMSEC
UNIT

TELECOMMUNICATION
MEDIA

USER TERMINAL

67-B
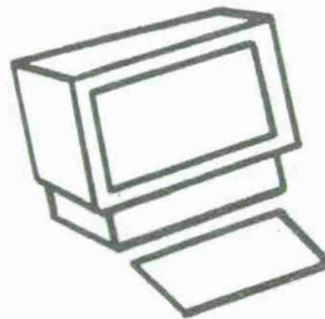
We have established at NSA in a partnership with industry something called the Development Center for Embedded COMSEC Products. That is the entity that will fabricate and market embeddable COMSEC modules, cryptographic units. A COMSEC unit will become something that can be embedded by an end item vendor, a PC maker or a radio maker, for the ultimate securing of that device. (See page 68-A)

.. . . . for this activity to produce a number of outputs. The first output which we hope to have available this spring is a standard input/output (I/O) akin, if you will, to an RS-232 or an IEEE 488, a COMSEC I/O standard such that module makers can build to that standard and embedders of those modules, the end item vendor, can build to that standard. It will be unclassified and made available to the industry for ultimate use.

Secondly -- and I'd like to jump to the interoperable modules bullet and then work back slightly -- produce unclassified (a key point, a key doctrinal change already; already we've talked about doctrine now) unclassified interoperable modules for use by quali-fied manufacturers to embed in a telecommunications product, working from (the second bullet) standard designs. That's the way I achieve interoperability. The design information is classi-fied. You can't go to the public store and get the design. You might be able to go to a public store and get the interoperable module. Such that I can make available to embeddors, people who would put these modules in their devices, standardized designs to an I/O that's unclassified.

Lastly, the vendors that we are working with to make these modules have the opportunity to build those modules in the techno-logy of their choice. Some may want to make them MIL-SPEC. Some may not. Some may want it to be radiation hardened. Some may not. Some may want to do 1-1/4 micron geometry, some something else. But on the surface, built to a standard I/O and interoperable.

The companies we're working with (see page 68-B) in a tight partnership to do this as listed as follows. Each of these people has in residence at least one engineer at NSA working with a group of 30 or so NSA people to bring about those outcomes that I just described. We're doing this under a partnership where we hope ultimately to have these corporations, as a start, offer a series of modules for voice applications, data applications, low speed, and high speed. So theme one I'd like to leave you with -- bullet one of the revolution, embeddable COMSEC and a concerted effort in a partnership basis to bring that about.

By the way -- I have no inhibitions if someone would like to ask a clarifying question along the way.

The second major arm in the COMSEC revolution -- the business relationships. (See page 68-C) I've shown four ways of doing business here, if you will. I'll go through them one at a time.

DCBCP WILL PRODUCE:

o STANDARD I/O (UNCLASSIFIED)

o STANDARD DESIGNS (CLASSIFIED)

o APPLICATION INDEPENDENT SECURITY SPECIFICATIONS (CLASSIFIED)

o INTEROPERABLE MODULES (UNCLASSIFIED)

o MARKED DRIVEN TECHNOLOGY (VENDOR CHOICE)

CORPORATE MEMBERS OF THE

EMBEDDED COMSEC TEAM

AT&T   MOTOROLA INCORPORATED

GTE CORPORATION   RCA CORPORATION

HARRIS CORPORATION   ROCKWELL INTERNATIONAL CORPORATION

HONEYWELL INCORPORATED   XEROX CORPORATION

HUGHES AIRCRAFT COMPANY   IBM CORPORATION

INTEL CORPORATION

NSA BUSINESS RELATIONSHIPS

o   TRADITIONAL

o   USER PARTNERSHIP

o   AUTHORIZED VENDORS

o   COMMERCIAL COMSEC ENDORSEMENT

I've labeled the way we always did it traditional. Now, I
could tell you how we always did it and you could get another pro-
gram manager from NSA who would probably tell you a different story
so there's probably not one way we've always done it. However,
there is a generalized theme and I'll review that for those who
don't know what it is. Then I'd like to take you through three
deviations from that: user partnership, authorized vendors, and the
commercial COMSEC endorsement program, and where appropriate, re-
late back to embeddable COMSEC modules. (Pages 69-A, 69-B)

Traditionally, and this goes hand-in-hand with stand-alone
COMSEC, what we have done -- and there's probably a bullet that
needs to be added to this -- we have centrally and separately
developed the COMSEC function from the ultimate device that it was
going to secure. Not to cast aspersions on any Service, but let's
pick an Army radio program. Army would go build the next genera-
tion tactical radio, NSA would go build the next generation COMSEC
unit to secure that. One contractor sat in development for the
Army; another for NSA. We exchanged specs and interfaces, and
ultimately we'd roll into production. Army would pick a production
contractor; NSA would compete its developed design and pick a set
of production contractors for the COMSEC. And what are the odds
now of this all mating together at the very end in terms of inter-
face, technical, in terms of schedule, in terms of quantity de-
livered, in terms of affordability? Tough. A tough job to bring
together. But that's the way we have approached it in the past.
In terms of contractors -- and I know you're interested in that --
the only way you could get COMSEC was government furnished property
or government furnished equipment. I believe, even though I don't
subscribe to that parallelism and that long tale that I talked
about, when the requirement clearly calls for stand-alone COMSEC,
then we will continue to do it this way, albeit much faster. But
there is a clear need for general purpose, stand-alone cryptographic
units. My claim is while that has been the predominant approach in
the past, it will not be the predominant approach in the future.
Embedded COMSEC will be. That's the way it has been and we will
continue to do that, so I don't want to imply any abdication of
that approach, just an augmentation by the following three approaches.

When the developer of the telecommunications device is the
government -- predominantly that's been the military and let's go
back to the Army example because I can make it real for you -- we
would like to become a member of that development team up front.
Not mating at the end, but up front. Bring to the table crypto-
graphic expertise, access to those modules, I/Os, designs, and
other technologies that we have, fund whatever development of cryp-
to is necessary, and embed in the design right away that COMSEC
functionality. Example, the Army is developing the . . . tactical
radio program for the battlefield of the future. Hundreds of
thousands, maybe 200,000 plus radios. We have redirected, mutual-
ly, that program. Not without some start-up problems, but we have
redirected that program such that we changed from an external
COMSEC approach to an embedded COMSEC approach. I can say that we

TRADITIONAL

o   NSA CENTRAL PROCUREMENT FOR GOVERNMENT USERS

o   COMSEC PROVIDED TO CONTRACTORS AS GFP

o   GENERAL-PURPOSE, STAND-ALONE APPLICATIONS

USER PARTNERSHIP

o   NSA BECOMES MEMBER OF DEVELOPMENT TEAM

o   NSA FUNDS CRYPTO DEVELOPMENT

o   EMPHASIS ON EMBEDDED CRYPTOGRAPHY

are probably going to save on the COMSEC piece of the cost alone approximately $300 in materials cost per unit. With a couple of hundred thousand units, that's $60 million -- that's real money. Not to mention that the duality of running two programs and the overhead associated with just two program management schemes is going to be saved. I don't know how to cost that, just to say that it's an efficiency that will be there. So as we proceed and as the government proceeds in developing telecom systems, we would like to become their partner in the beginning toward embedding COMSEC into those products.

Business relationship augmentation -- one, something we call user partnership, the government developing the telecom device. I'm going to contrast this after a slight commercial break in a minute.

Since we're talking here to a number of government contractors, it's very important that you realize that we, the government, are serious about securing contractor communications associated with development and production programs with the government. National Security Instruction, NACSI 6002, essentially requires government program managers to require government contractors on classified and sensitive contracts to acquire a secure communications capability in support of that contract. And to do that in two years. The date of that NACSI was June 1984. Secondly, to permit the cost of acquiring that secure communications capability to be charged back to the government as other security costs are allowed by the Federal Acquisition Regulations. Be that as a direct charge on the contract or as an overhead charge. We reacted to that demand by looking at our current inventory of communications security equipment and authorizing those current producers of voice and data equipments (and I'll show you examples in a minute, hence the term "authorized vendor") to directly sell, carbon copies if you will, that product to government contractors. He had to go in excess capacity of his deliverables to government so we didn't shortchange legitimate government contracted requirements. And not only to offer sales and marketing, but installation and maintenance services, as well. (See page 70-A)

Examples of those products are a general purpose data encryptor, 0-64 kilobits -- something we call a KG-84, offered by Bendix and TRW -- and a secure voice equipment that works over the Bell system, autovon, foreign PTTs, FTS, the KY-71, also known as a secure telephone unit II (STU-II) built by ITT. And finally, some cryptographic fill devices, those machines that enter key -- remember the key -- into the device, made by STC Burroughs. (See page 70-B). Those devices are available. We have prepared an extensive "how-to" manual on how to acquire, operate, maintain, and key, etc., these devices. The vendors have access to an executive summary of that, and when you are called upon by your contract officer to acquire COMSEC you can seek these vendors out and they'll provide that information and we can start the process toward implementing it.

AUTHORIZED COMSEC VENDORS

o **NACSI 6002**

o **MATURE PRODUCT**

o **CONTRACTOR BUILDS TO PRINT**

o **DIRECT SALES/MARKETING**

AUTHORIZED COMSEC VENDORS

o   BENDIX, TRW   -   KG-84

o   ITT   -   KY-71 (STU-II)

o   BURROUGHS   -   KOI-18, KYK-13

Probably the most important in the three new ways of doing business approaches, back to embedded COMSEC, if you will. Commercial COMSEC Endorsement Program (CCEP). (See page 71-A) This is a strong analogy to the user partnership I described. Here, however, the development entity is the commercial telecommunications manufacturer. I've shown him up there on your right, a vendor. NSA supplies to him standards, cryptographic expertise. He embeds in his product a cryptographic function and offers for sale, upon our evaluation, an endorsed device -- endorsed for the protection of classified or, in fact, unclassified information. The kinds of vendors we're talking about generally must meet the following: U.S. firm, no foreign-owned or influenced companies, because we're talking about access to classified cryptology information; a vendor that has a product where embedding COMSEC in it has a direct and obvious benefit to the national objective, the objective I talked about. It has to be something that's going to be used in the national security community or in the protection of proprietary or sensitive information. A direct and obvious benefit kind of criteria. A quality producer. The coined term we say is we can't afford junk COMSEC. Well, that's certainly true. So the vendor has to have a quality assurance, configuration control kind of program that he can demonstrate would, in fact, produce a reliable product. I'm not talking about applying all the MIL-SPEC kind of reliability factors here, but I'm talking about someone who can build quality products to good commercial practice. And finally, he's going to have to have a facility clearance because some of the information that he's going to be given up front is classified and he'll have to be able to handle that. And, of course, ultimately, there are only so many people that we would be able to perform this assistance with. So there's some gate called our own ability in terms of resources, primarily manpower.

On the other leg, NSA will supply to that user community, and I'm going to expand on that in a minute, key material, as appropriate, guidance in the use of the cryptology, and ultimately we will publish an endorsed products list so the buyer will know who has been endorsed and where he can get a secured XYZ.

There are two types of products (see page 71-B). National Security Decision Directive 145, signed in September of 1984, said many, many things. But one of the key features, as far as we are concerned here, is that it cited a responsibility for government to assist not only government in securing its classified information -- a role we have always had -- but to assist the private sector in protecting sensitive information, and to offer an assisting hand to the private sector to do that. Hence, we have structured this CCEP, this Commercial COMSEC Endorsement Program, to actually output two generic types of devices. Type I, for lack of a better term, for classified information. The traditional kind of thing we have done in government and particularly we as the action agent in government for communications security have done. But an expanded role, Type II, for unclassified

COMMERCIAL COMSEC ENDORSEMENT PROGRAM

(CCEP)

PROCEDURES, STANDARDS
ENDORSEMENT CERTIFICATE

NSA ⟶ VENDOR

ENGINEERING DESIGN, EQUIPMENT

CONSULTATION,
GUIDANCE

GUIDELINES ON
THE HANDLING
OF COMMERCIAL
CRYPTOGRAPHIC
EQUIPMENTS

KEYING MATERIAL

LIST OF ENDORSED
EQUIPMENTS

USER

ENDORSED
EQUIPMENTS

71-A
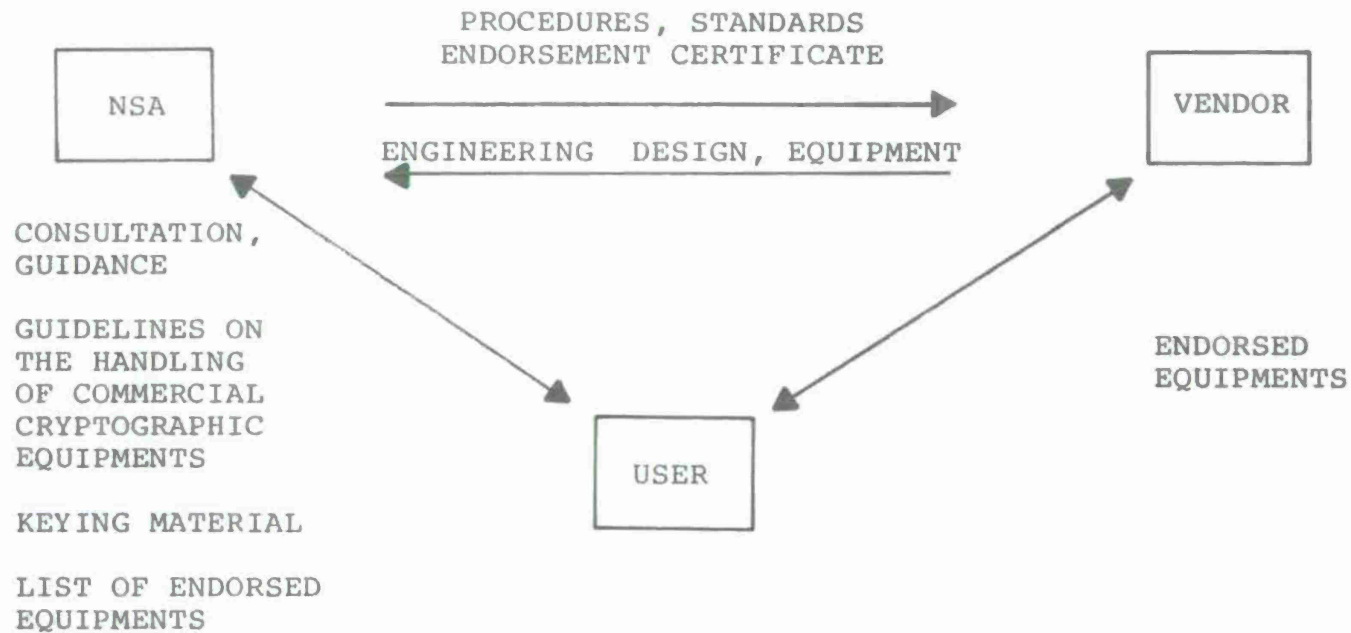
BASIC TYPES OF CCEP PRODUCTS

TYPE I   SECURES CLASSIFIED INFORMATION

TYPE II   SECURES UNCLASSIFIED SENSITIVE INFORMATION

but sensitive information. So outputting in this process can be in fact two types of products for roughly two types of markets. I'll expand all this now in one picture. (See page 72-A)

NSA will provide to the COMSEC module chip vendor (the box on your right) -- and those are the eleven companies I mentioned in the beginning, the Development Center for Embedded COMSEC Products is there. The cryptographic information essential to build embeddable COMSEC modules. We'd like those modules, those interoperable modules I talked about, to have 80% to 85% of all the cryptographic functionality essential for ultimate endorsement for using classified or sensitive information. Why not 100%? Because that's impossible. For example, for those of you who understand what the world of compromising emanations is about or TEMPEST, I think this will drive the point clear. I could make that module, that COMSEC module not to be a TEMPEST problem, but embedding that in a personal computer could not solve the keyboard radiation potential problem, the monitor screen radiation problem. So there's a roughly 15% to 20% of the total COMSEC functionality that can't be done in a module that will have to be done on an end item basis. Hence, the modules that come out of the chip development center, Type I or Type II, will be sold to qualified vendors. I've called them user end item vendors, the bottom box. They will be permitted to sell to vendors who have joined the NSA Commercial COMSEC Endorsement Program, and that arrow coming down from NSA to those user end item vendors contains that last 15% to 20% of the COMSEC functionality that's necessary to achieve a fully-endorsed Type I and/or Type II product for sale, then, to, in the case of Type I, government and its contractors -- that's where you find classified information in this country, and that's what the market for Type I is intended for -- or Type II aimed at the government market that's dealing in sensitive, as well as the private sector.

We hope that the sum of those markets, the leverage of the private sector and the government together creates market opportunity for those end item vendors for enticement to participate in the program, and to achieve secured products at a reasonable cost for market to both sectors. So there's a leveraging of both that's important in this process. It's clearly, in our view, a market-driven approach, and the market has to be identified and be there for it to be fully successful.

In the area of keying, just let me touch on that a moment. As we have in the past, we would provide key, as we've done to the government information market, which is the government or its contractors, sort of free, if you will. The form of that key, though, in the future, is going to be dramatically different than the form of the key has been in the past. In the past, key has been code books and paper tape. As we evolve our own keying technologies, you're going to see that change to a more electronic form and almost to the point of a user transparent form where

CCEP

NSA

ALGORITHMS/
FUNC SECURITY STDS

KEY AT COST → **COMMERCIAL KEY DISTRIBUTION**

PRIVATE KEY

FREE KEY

APPLICATION
DEPENDENT
SECURITY
STANDARDS

U. S. GOVERNMENT /CONTRACTOR USE

PRIVATE SECTOR USE

COMSEC MODULE/CHIP VENDORS

TYPE I CHIPS, MODULES

TYPE II CHIPS, MODULES

USER END ITEM VENDORS

ENDORSED TYPE I

ENDORSED TYPE II PRODUCTS

72-A
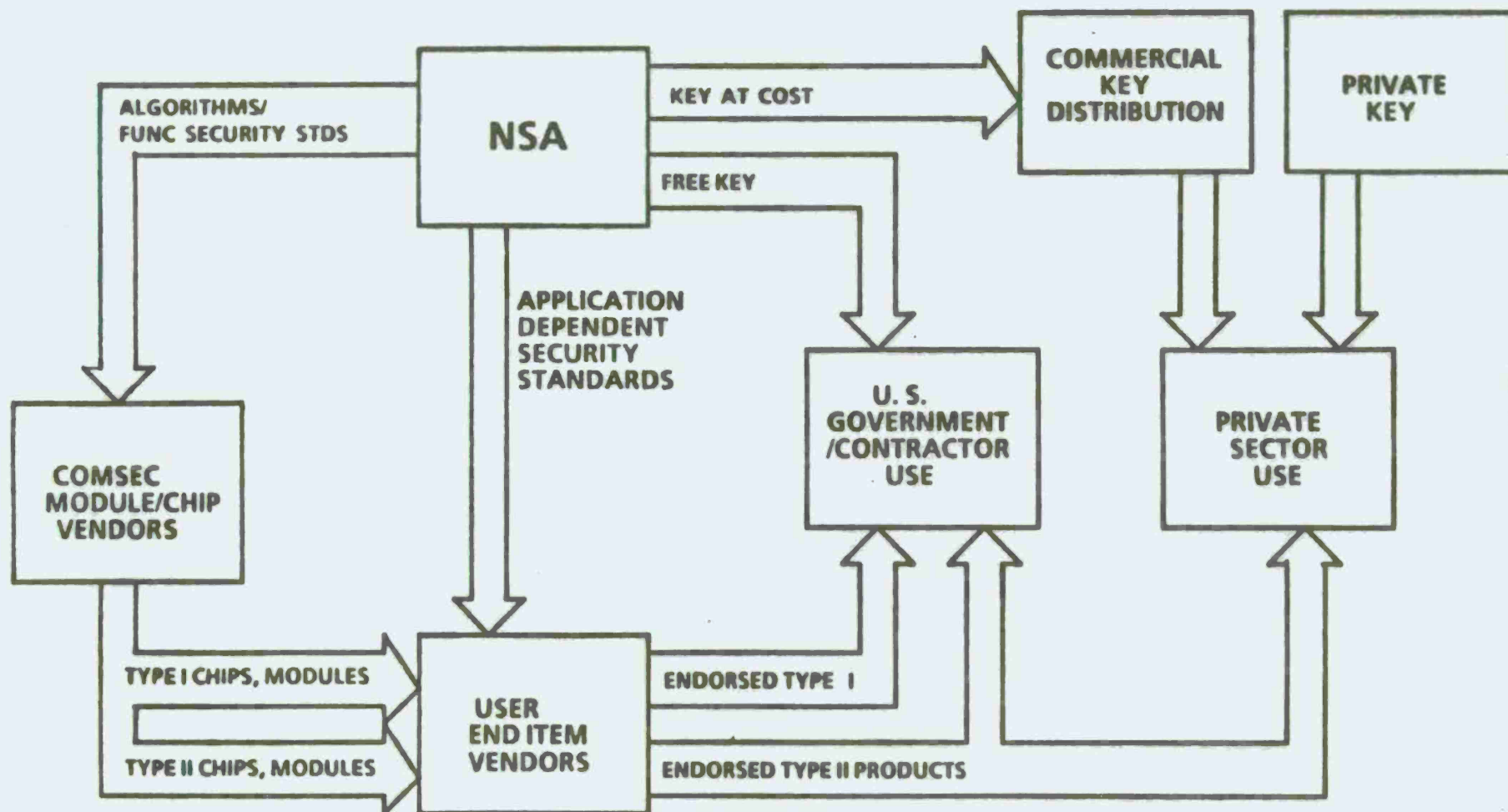
EXAMPLE CCEP PROGRAMS

PRODUCT LINE	COMPANY
PCs	ATT, IBM, ZENITH, SYSTEMATIC GENERAL, GRID, PE SYSTEMS, HP, ANALYTICS COMMUNICATIONS SYSTEMS
LANs	WU, XEROX, SYSTEK, DEC
DATA ENCRYPTION/ AUTHENTICATION	MOTOROLA, E-SYSTEMS, MARTIN MARIETTA, HONEYWELL
RADIOs	MOTOROLA, MAGNAVOX, RCA
SATELLITE T&C	RCA, HUGHES
SECURE TELEPHONE	ATT, RCA, MOTOROLA
IFF	HAZELTINE, BENDIX, TELEDYNE

you're being keyed and rekeyed and not really even knowing it.
That's where we'd like to be. So the COMSEC becomes a much more
transparent function in the overall movement of information.

In the case of the private sector, I must admit that that,
in terms of total plan, as mature as the government one which we've
been doing for years, but some provision for key at cost seems
inevitable because government just isn't at liberty, by statute,
to provide certain things free. It's much like when you go to the
Government Printing Office to get a document, there's a nominal
charge for the at-cost printing; so, also, would there be some
at-cost capability here.

There's also the possibility that someone just doesn't want
government providing its key, and there's clearly the opportunity
for home brew or private key built by whomever. The only thing we
would say there is while we endorse to that Type II product going
into that box, the ultimate protection afforded to that by someone
who brewed his own key can't be endorsed since we have no control
over what he did. Good key is not a trivial process.

This is not a total list, but a sample (and I'm working on a
total list that keeps changing) of the kinds of companies that are
currently participating with us -- these are end-item vendors;
they may be the same companies as those 11 chip and module vendors,
but these are people building end items such as PCs, local area
networks (LANs), authentication and encryption devices, radios,
working with some of the satellite DOMSAT people for secure tracking
and control. In the area of secure telephone, I want to digress
there a minute and make a couple points about the Secure Telephone
Unit III program. You heard about STU II a minute ago, one of our
authorized vendors, ITT. These three companies, ATT, RCA, and
Motorola -- and I'm sure unless you've not been reading the journals
or the New York Times or a number of other public media publications,
most of you must be aware of our dramatic program to build one-half
million to a million secure telephone units for government and the
private sector under the banner of the STU III program. That
program offers dramatic improvements in cost over the STU II. The
STU III target cost is in the order of $2,000 a unit, much reduced
from what currently is the price of STU IIs. Dramatic improved
performance over the telephone network; a dramatic change in the
keying approach. It is the absolutely most advanced keying tech-
nique that we have ever assembled, to the point where it is almost
user transparent, that ideal state that I mentioned in terms of
keying, so it offers a tremendous number of advantages and our tar-
get is to have that equipment available in the middle of 1987.
Finally, in the area of Identification Friend or Foe (IFF), we
have three companies that are working a product there. This is
just an example of the kinds of companies that are currently par-
ticipating with us in the CCEP to bring about Type I and/or Type
II secured products to the marketplace. (See page 73-A)

Finally, control. (See page 74-A) I've touched on the most
dramatic change in control already when I said COMSEC came out of
the closet, if you will, and became unclassified. Type I products
secured for protection of classified information. They will be-
come -- and a number of inventory products have already become
controlled cryptographic items. What are those? Well, they're not
classified. Heretofore, most all of our COMSEC was at least
confidential in the hardware state. Sales limited to, as I men-
tioned before, government and its contractors, and in the case of
contractors, in the case where the contractor has an opportunity
to actually own the COMSEC and recover costs through overhead or
even tax write-offs, those contractors cannot be foreign owned,
controlled, or influenced. In a case where a contractor is pro-
vided GFE, if he has a facility clearance even though he may have
some foreign owned, controlled, or influenced status, that still
remains because he has a secret contract and we want to secure
that information. But he would not be allowed to own the product.
It would have to be provided on a government-owned basis. The
quid pro quo, however, the rub, if you will, for unclassified
COMSEC is a continuous serial number accountability of the user
end item with an annual inventory requirement to a central point
in the user community. Must do that to ensure the integrity of
the system and the continued integrity of the cryptology that's
involved here, so there is a quid pro quo for the relaxation in
classification. Beyond that, protected as high value property.
Not a long string of how-tos and what-tos, protected as high value
property and again, I should spell out ITAR -- subject to the ex-
port laws, if you will -- International Traffic in Arms Regula-
tions, better known as the Export Act. As, by the way, is _all_
cryptography, so this is a redundant requirement, but I bring it
up for emphasis.

Finally, for Type II products, again, securing unclassified
information. Sales to government contractors and the private sec-
tor. Point of sale serial number accountability, and subject to
the Export Act. So there's some relaxation in these two types
of products. (See page 74-B) And I make a point here that the
cryptology is different in these two types of products. It's not
to say that this is not good cryptology; this is good cryptology.
It's just that it is not necessarily the same as we applied in
Type I, as you might expect because of the differing applications
and the differing values of the information to be subsequently
protected by the products themselves.

That, in a summary, is the COMSEC revolution. There are
lots and lots of details, of course, that time doesn't permit to
go into today. I do want to emphasize that it is hinged upon a
tight partnership with industry. We've opened the door. We have
procedures and information available about this approach, and for
those of you who haven't heard about it before, I hope this whets
your appetite and spurs you to begin to think about how (a) you
might secure information at your facility, and (b) if, in fact, you
are a vendor of a product that's in the marketplace of the national

NEW CONTROL CONCEPTS

TYPE I -- SECURES CLASSIFIED INFORMATION

o CONTROLLED CRYPTOGRAPHIC ITEMS (CCI)

   - SALES TO GOVERNMENT AND CONTRACTORS
              -- NO FOCI --

   - CCI CONTROL AGREEMENT FOR CONTRACTOR SALES

   - CONTINUOUS SERIAL NUMBER ACCOUNTABILITY OF
      END USER ITEMS

   - PROTECT AS HIGH VALUE PROPERTY

   - SUBJECT TO ITAR

NEW CONTROL CONCEPTS

TYPE II -- SECURES UNCLASSIFIED, BUT SENSITIVE NATIONAL
           SECURITY-RELATED INFORMATION

-   SALES TO GOVERNMENT CONTRACTORS AND PRIVATE SECTOR

-   POINT OF SALE SERIAL NUMBER ACCOUNTABILITY

-   SUBJECT TO ITAR

security arena, how you might embed COMSEC in that so as to offer
a secured communications capability.

Thank you for the opportunity to come down. I hope I got the
point across that addressed at least your higher order questions
about where we're headed. I'll be glad to take questions.

Question -- cannot be heard

Mr. Flemming

The question was how do we intend to support the embedded
modules when they're in the hands of contractors. Support comes
from the manufacturer. In other words -- and I can't answer it
directly because I'm not sure how a manufacturer may, in fact,
offer a support package. But we're talking about the vendor offer-
ing installation, maintenance, services? Certain repair parts in
that module will only be available from the chip house that's been
authorized to build those. Remember, it's unclassified. Now,
I've presented an obvious question to you, and I didn't really
address it, but it has to be on somebody's mind. We've got classi-
fied designs and unclassified hardware. Somewhere in there, there's
a magic moment. It's got to switch over. That magic moment is at
the factory, and it's at the module factory for the most part. We
have procedures we've worked up with the module vendors on how
that's treated. So outputting from that is, in fact, an unclassi-
fied piece of hardware. I might add that we are taking some tech-
nical steps to make the opportunity for reverse engineering back
to that classified design difficult.

Question -- cannot be heard

Mr. Flemming

That's an excellent question. I think I can summarize it.
How do we get the security people in the business who implement
what you might call old doctrine rolled over to the new doctrine?
We've consciously spent quite a bit of time with people such as
the Defense Investigative Service in reviewing our intentions for
controlled cryptographic item COMSEC because as anyone who has
seen the COMSEC supplement to the Defense Investigative Service
knows, the kind of controls spelled out in there are for classi-
fied hardware. We've now created something that isn't that, and
as I mentioned earlier when I was talking about NACSI 6002 and
authorized vendors, we have prepared a "how-to" manual and that
manual spells out in detail how to acquire, control, dispose of,
get key for controlled cryptographic item hardware in the contrac-
tor community. DIS is well aware of that and we're working together
on how to promulgate that information out to the field. For gov-
ernment, last year we issued a directive that created the category
of controlled cryptographic items, and announced the category,
prescribed the control procedures, left to the government agencies

and departments the responsibility for implementing within those
generalized guidelines. This was a three- or four-page document
that left the mechanisms for serial number accounting, for example,
the mechanisms for treat-as-high-value property, the mechanisms
for achieving restrictions against foreign access, etc., up to the
individual agencies and departments. Each of those, in turn, now
are preparing their own procedures. We took that approach because
we decided not to prescribe in finite detail the best way to
track. Some people might want to use current property systems
that are already in place, and that was fine. But we didn't want
to prescribe an overlay system. That's not a direct answer because
in that case, I'm not sure exactly how each of them is going to
implement it. I can only say that they're all working on it.
Subsequent to that we sent out messages naming by nomenclature
equipment that has been declassified from confidential, usually, to
a CCI. The word is getting out slowly, though, and it's through
forums like this that we're trying to get the word out, at least
to the high order. We're all over the country, at least until
Gramm-Rudman, now our travel is getting a little tighter. We're
trying to get the word out to people who are implementing, such
as our COMSEC contractors' conference coming up in April, where
we'll spend an enormous amount of time with workshops on CCI and
things like that. Through cooperation with other regulatory agen-
cies such as DIS and the Services, and through forums like this
we're trying to get the word out. I don't know that I can answer
your direct question about movement of information in DTIC and
things like that. I'm not sure if I've got that part of your ques-
tion firmly established in my mind. It's a tough problem, though.
There are a lot of people out there implementing controls for
classified COMSEC. Suddenly we changed, and it's going to take
some time to roll into new thinking.

Question -- cannot be heard

Mr. Flemming

    The question is where does the new crypto gear going to the
DTIC fit in, the KG-84. That was one of the products currently
available from Bendix and TRW for direct sale to government and
government contractors. It's no longer confidential; it's now CCI.
It is a new piece of equipment; its genesis was old-way-of-doing-
business, if you will, but it's one of our newer traditionally-
developed and produced devices. Bendix and TRW were our contrac-
tors for that device on a traditional procurement where we received
money from the Services and delivered, through the contractors,
a product direct to the buyers. We have subsequently, last year,
authorized through a Memorandum of Understanding those particular
manufacturers to go, in excess of our contracted requirements, and
sell direct to the government and government contractors. And
government and government contractors have gone direct to Bendix
and TRW and acquired products. What we've created is another
opportunity for securing terminals such as you have in DTIC. But
the KG-84, per se, came out of our traditional way of doing

Mr. Saunders

Our next speaker, Mr. Frank Sobieszczyk, is the Assistant for Scientific and Technical Information, Office of the Deputy Under Secretary of Defense for Research and Advanced Technology. That is, he works with Dr. Leo Young. He's a primary action officer for the DoD Scientific and Technical Information Program. He coordinates DoD-wide activities designed to improve internal information operations, to facilitate the sharing of federal technology with domestic industry and state and local governments, and to increase the coordination of R&D planning between DoD and its contractor community. Mr. Sobieszczyk earned his Master of Business Administration from Syracuse, and did his undergraduate studies at the University of Pittsburgh. He will talk to us this afternoon on control of critical technology considerations and release of R&D planning information to industry.

Mr. Frank Sobieszczyk

Thank you, Bill. I'm going to apologize right up front because I intend to read a lot of this presentation for a very practical reason. It's a fairly complex subject and I've found that I can keep the fog level reduced quite a bit if I do that! However, I did read the first paragraph that I usually use, and I'm not so sure about it anymore. It reads, "It is a distinct pleasure for me to have the opportunity to make this presentation on the control of unclassified technology with military application for and on behalf of the Office of the Deputy Under Secretary of Defense for Research and Advanced Technology." Normally that would be true; but given the audience, all of a sudden I realize that my bosses were the guys that had the opportunity to tell all the good things they were doing for you, and I have gotten the job of telling you all the things we're going to do to you. I guess in the vast order of things, that's appropriate because I'm low man on the totem pole.

The United States and its allies depend on qualitative advantages to compensate for the Soviets' quantitative advantage. Therefore, a superior technological base is critical to our national defense. In order to inhibit the loss of a valuable national asset, the Department of Defense sees a compelling requirement to improve control on unclassified technology with military or space application. The objective is to safeguard such technology in a reasonable and rational manner without adversely affecting business competition, technological innovation, and economic growth. Thus the title, "Control of Unclassified Technology," reflects this intent in its most positive sense.

In 1984, the Defense Authorization Act provided the Secretary of Defense authority to withhold from public disclosure certain technical data with military or space application. In enacting this legislation, Congress remedied an inconsistency that existed

between the export laws and the Freedom of Information Act. Regulations implementing this new authority were signed by Secretary Weinberger in November of 1984. These regulations will be the principal focus of my presentation here.

The focus of the program itself is on awareness. Thus we see the caution sign. Please note that it is not a stop sign. We don't intend to stop invention or science. We just want to try to make people aware of the national security significance of some of the technology that they handle. By these presentations in cities all over the United States to people in both government and industry, the Department hopes first to achieve an understanding of the potential harm to our national security that could result from the uncontrolled disclosure of unclassified technical data with military application.

Instead of showing you all our threat slides, I'm going to point you to a document that was recently released by the Secretary entitled, "Soviet Acquisition of Militarily Significant Western Technology; An Update." It will provide most of the rationale why we are doing what we are doing. This document is available through DTIC, and throughout the course of my presentation I'll probably be building more business for DTIC than they may like to handle, but that's what they're there for.

Our next objective is to review current DoD policies and practices that are designed to preclude uncontrolled acquisition of data by potential adversaries.

Third, we'd like to increase your knowledge of new DoD procedures.

Last, but certainly not least, I'd like to provide a forum for government, industry, and others to exchange views on how relevant DoD information access policies may be implemented effectively. The Department's goal -- let me emphasize again -- in implementing this new authority is to continue to encourage scientific innovation and preserve the capability of industry to compete successfully in both domestic and international markets.

I'm first going to cover the newly approved Defense directive that deals with the control of unclassified military technology. DoD Directive 5230.25 is titled, "Withholding of Unclassified Technical Data from Public Disclosure." It implements the statutory authority provided in the FY84 Defense Authorization Act. The title may be a little bit misleading because besides telling the community when and what data will be withheld from public disclosure, it also sets up a release system which tells individuals, both in government and in industry, when and how to acquire the data that is being controlled.

Specifically, Public Law 9894, the Defense Authorization Act of 1984, amended Title X, U.S. Code, Section 140-C. Now, in

enacting this provision, Congress eliminated the inconsistency that existed between the export laws and the Freedom of Information Act.

Let's discuss that inconsistency a bit. Under the Export Control Laws, any technical data released to the public by the DoD or any other government agency becomes subject to a general unrestricted license or exemption. This means that that data can then be exported abroad without the government review that normally takes place. Because the Freedom of Information Act contained no exemption for export control data, DoD found itself having to make unclassified technical data available to the public, both domestically and internationally, thereby losing any opportunity of maintaining export protections over its dissemination abroad. We found ourselves in a situation of having to release all unclassified drawings of the F-16, for example. The new statutory authority changes this situation by permitting the Secretary to withhold export controlled technical data under the provisions of the third exemption to the Freedom of Information Act. It's that third exemption which recognizes other statutes which authorize withholding.

In implementing this new authority, DoD's challenge was to find a way to provide reasonable safeguards over the technical data without slowing technical progress or impairing the ability of business to compete for DoD contracts. The essence of the problem was how to share data with appropriate people without making it "publicly available" as defined in the export laws. Twelve months of intensive effort, which included two periods of public comment and coordination and review by the staffs of eight different committees and subcommittees of Congress, produced a system that we think successfully meets that challenge. DoD intentionally approved regulations that allows the release of most export controlled technical data to individuals and enterprises in the United States. But release is conditioned on agreement with DoD; therefore, the provision of such data is not a public disclosure; therefore, the protections afforded by the export laws remain in full force.

The legislation gives the Secretary broad authority over a great expanse of technical data. It is not the intention, however, of DoD to take all technical data with military or space application and place it under lock and key. On the contrary, as the Department of Defense implements this new authority, I believe you will agree that care has been exercised to reduce the loss of a valuable national asset (U. S. technical data with military or space application), avoid excessive red tape and minimize cost, provide easy access for legitimate contractors and other authorized users to technology with military application, maintain an atmosphere of technical data exchange that encourages innovation and technical progress, and, of course, reduce the loss of a valuable national asset, U.S. technical data with military or space application.

Before going on, let's be clear about just what information may be withheld from public disclosure under the provisions of this new legislation and the DoD implementing regulations. First, it must be technical data in the possession of or under the control of the DoD. Next, it must be technical data with military or space application that may not be exported lawfully without an approval, authorization, or license under the provisions of our export laws and their implementing regulations. Finally, it is data that discloses critical technology. Now, it was the addition of this last criterion by DoD -- this is not found in the law -- that significantly narrows the scope of the information that under the new legislation will be withheld from public disclosure. This is defined in the law as any blueprint, drawing, plan, instruction, computer software or documentation, or other technical information that can be used or adapted for use to design, engineer, produce, manufacture, operate, repair, overhaul, or reproduce any military or space equipment or technology concerning such equipment.

The next step is to identify whether or not the information is under the control of or in the possession of the Department of Defense. This includes information that is created by elements of the Department or information that is developed or produced for the Department of Defense under contractual agreements or other arrangements.

Whether technical data may or may not be exported lawfully without approval is the next consideration. This can be determined under the export control laws and their implementing regulations. United States regulations provide a munitions control list and a commodities control list that include descriptors of the information covered. The law specifically exempts technical data that are authorized for export pursuant to a general, unrestricted license or exemption under the provisions of regulations implementing the export laws. I want to note that this general, unrestricted license established under the export regulations covers the export of scientific and educational data not directly and significantly related to design, production, or utilization in industrial processes. Therefore, the new legislation and DoD policies do not apply to scientific, educational, or other data that qualifies for this general license. It follows that these policies will have little or no impact on the dissemination of information related to fundamental research or the results thereof that by definition are excluded from the meaning of technical data that is subject to export control. It also follows that the majority of the information that you'll find in DTIC probably will not be export controlled. It is not the type of data that is used to design or manufacture items that are controlled, for example.

A recently-signed National Security Decision Directive 189 codifies this overall policy for the whole government. The National Security Decision Directive basically says that for fundamental research, the normal and only mechanism of control is classification. No other type of control is permitted at all.

With respect to critical technology, DoD issuances have defined it as technologies that consist of arrays of design and manufacturing know-how, including technical data, keystone manufacturing inspection and test equipment, keystone materials, and goods accompanied by sophisticated operation, application, or maintenance know-how that would make a significant contribution to the military potential of any country or combinations of countries and that may prove detrimental to the security of the United States. This is also referred to as militarily critical technology.

This definition is supplemented and clarified considerably in the document known as the Militarily Critical Technologies List. This list, last published in both classified and unclassified form in October of 1984, is a detailed and structured technical document of development, production, and utilization technologies which the DoD assesses to be crucial to given military capabilities, and of significant value to potential adversaries. The classified list is also a handy and quick reference tool for helping to decide which technical data is export controlled. Copies of both documents are available through the Defense Technical Information Center. The unclassified version may be purchased from the National Technical Information Service of the Department of Commerce, as well.

When DoD controlling offices conduct reviews of the technical data they generate, they do have access to the guidance necessary to make a decision to apply appropriate distribution markings, for example. This guidance is comprised of approved definitions of technical data and critical technology, and the MCTL, the Militarily Critical Technologies List, in conjunction with the guidance provided by the export laws and their implementing regulations. If after the review it is found that the technical data fulfills certain criteria for withholding it from public disclosure, the data will be identified and appropriately marked with an export control warning notice. This is another part of the awareness program. The intent is to satisfy the requirement of those who have approached us, and basically says we will be happy to work with you if we only know what it is that you are concerned about. Now every document that is restricted under this authority will be marked appropriately and hopefully very clearly so when you handle the data you will know that it is something we have to take into consideration.

In addition to the export warning statement, the originator will select from a range of distribution statements for regulating the routine distribution of technical documents containing such data. The distribution markings are described in a new DoD Directive 5230.24. I'm not going to get into that in too much detail here.

There are those outside the U.S. Government who also have legitimate requirements to have access to this data. They need it in order to do business or to provide goods and services to U.S. Government agencies, for example. The Department of Defense has established a system that allows the transfer of such data to

individuals and organizations in the U.S., while retaining the pro-
tections afforded by the export laws. Now the question is how does
a company become eligible to obtain access to this type of data.
Companies and individuals must complete a DD Form 2345. This is
identified as an Export Control DoD Technical Data Agreement.
Copies of the form are being distributed by several national trade
associations, the Defense Logistics Services Center, the Navy Pub-
lications and Forms Centers, and various other distribution points.
When completed, the form is best described as a self-certification.
The only additional constraint imposed on the use of the informa-
tion beyond that that is already found in the export laws is a
promise not to put the data into the public domain. The Defense
Logistics Agency has the overall responsibility for administering
the certification system. The operational functions are being
carried out by the Defense Logistics Services Center, which is
responsible for collecting the certifications and maintaining them
in the database. They also will be disseminating a Qualified U.S.
Contractor Access List of contractors eligible for access to export
control DoD technical data. DLSC is located in Battle Creek,
Michigan.

On the form, the requester certifies that the data are needed
to bid or perform on a contract with DoD or other government agency
or for other legitimate business purposes in which the company is
engaged or plans to engage. Let's take a look at some of these
other legitimate business purposes. Bidding or preparing to bid on
a sale of surplus property; selling or producing products for the
commercial domestic or foreign marketplace, providing that any
required export licenses are obtained; engaging in scientific re-
search in a professional capacity; acting as a subcontractor for a
concern that may be involved in any of the foregoing activities;
or selling technical data that is subject to the new legislation
in support of DoD contractors or in support of the competitive
process for DoD contracts, provided such sales are limited solely
to DoD contractors or potential contractors who are also qualified
to obtain export controlled technical data.

In the interest of time, I'm going to refer you to the DoD
Directives themselves, and some of the other awareness tools we've
been trying to generate, one of which is a handy little pamphlet
entitled, "Control of Unclassified Technical Data with Military or
Space Application." There was some distribution of this in the
past; we've just gone in for another major reprint that will be
available to you shortly. The Defense Investigative Service has
outlined both the new regulations and some of the threat in a
free-for-the-asking document called, "The Security Awareness Bulle-
tin, Special Issue #4-85," dated August of 1985 and available
through your security contracts or the Defense Intelligence Service
down in Richmond.

The procedures are in place, but as with any other system,
it's not going to be effective without the cooperation of both
industry and government. The procedures are in place and they

seem to be working as planned. Our principal objective still is to increase the general awareness both of the threat and of DoD activities to counter that threat.

I'd be more than happy to take any questions.

Question

When can we get the pamphlet you mentioned?

Mr. Sobieszczyk

It will be available from each of the Services as soon as the printer delivers them in about 1-1/2 weeks. It will be available through the TILOs. We will probably make a stock available to DTIC to hand out.

Thank you very much.

WORKSHOP

IMPROVING THE DOD/INDUSTRY
PLANNING INFORMATION EXCHANGE PROCESS

Mr. Saunders

. . . a panel discussion, and then at 10:00 o'clock we're going to break up for working group sessions. There'll be two sessions. It's going to be a hard choice because they're both going to be great. Session A, Eliminating Barriers to Communication of Defense R&D Planning Information; Session B, Improving Availability and Utilization of Defense R&D Planning Information.

To start this one, this is a workshop on Improving the DoD/ Industry Planning Information Exchange Process. We're very fortunate to have the level caliber of panelists that we've gathered today. I would like to first introduce the panel chairman, Mr. Larry White. He is the Manager of the Requirements Analysis/Market Research, Autonetics Strategic Systems Division, Rockwell International in Anaheim.

Mr. Larry White

Thank you, Bill. One of the basic reasons for the 1981 and 1982 DoD/Industry conferences on technical information management was a perception by many of us that there were some very serious problems associated with the availability and the suitability and the currency of R&D planning information from DoD to industry. Since that time, I think we've made progress in some areas, but due to budget and security problems of this day, I think a lot of us are more concerned that not only are we barely holding our ground, but maybe we're even going backwards.

The purpose of the panel discussion this morning is to try and stimulate your thinking so that when we do start the workshops we can come up with, hopefully, useful recommendations of where we should go from here and how and why. So as you listen to the comments being made here, please keep that in mind.

As far as the format is concerned, we're going to have the Service representatives make their comments or presentations first, and then after they have finished, Bill Zeigler and I will make some comments from industry's viewpoint. After we're finished, I would like to give all the members of the panel an opportunity to make any additional comments they may want based on what they've heard the other panelists say. When we panelists are finished, then we'll open it up to questions and comments from the audience. When you ask a question, please address it to one of the panel members here, and I will also ask that the panel members repeat the question so that everybody can hear it and we can get it on

tape for the proceedings. Some of the speakers will use this podium; others will speak from their chairs. We'll try to make this as informal as possible.

Our first speaker will be Colonel John Ramsden, who is currently the Chief of the RDT&E Programs and Budget Division, Office of the Deputy Chief of Staff for Research, Development, and Acquisition of the Army. Colonel Ramsden enlisted in the Army in 1951, subsequently entered the U.S. Military Academy, where he graduated in 1957. He has had a number of assignments in the Army and a number of research and development and maintenance assignments, including R&D Coordinator; Chief, Long Range Technical Forecasting Office; Product Manager of . . . Arsenal; Associate Professor, Department of Electrical Engineering, West Point; and Commander of Harry Diamond Laboratory at Adelphi, Maryland. Colonel Ramsden is a graduate of the Command and General Staff College and the Industrial College of the Armed Forces. He holds a Masters Degree in Engineering Science from Purdue University, and his decorations include the Legion of Merit, the Bronze Star, and the Meritorious Service Medal. Join me in welcoming Colonel John Ramsden.

Colonel John Ramsden, USA

Yesterday, during one of the breaks, there was obviously a lot of interest in the Gramm-Rudman, so I wanted to start off this morning, in view of that interest and in the interest of passing on the latest information to this group, how Gramm-Rudman has affected the Army RDT&E appropriation in FY85 and FY86.

The RDTEA is the Research, Development, Test, and Evaluation Appropriation, Army. We were hit with a standard percentage which is equal to 4.9%. I think that was fairly uniform throughout all the Services in terms of that percentage reduction. In the case of the Army, no RDT&E programs were protected. As you're probably aware, in FY86 the Congress did give us a little bit of flexibility in terms of recommending through the Army leadership and to OSD and to the President certain programs that he would consider for protection. The Army leadership recommended in the case of RDT&E that we should not protect any programs and that all programs would be hit equally. There were in the Army two procurement programs that were protected, and the other Services, I think, also had some procurement programs, multi-year contracts that were protected. The exact amounts were calculated by the Office of the Secretary of Defense and handed to the Services, so we did not play in doing that particular calculation, although we obviously verified those calculations. For FY86, there was a 4.9% reduction applied to each program element based on the final FY86 Appropriation Act amount.

Also, the law provided for the sequestering of funds that were still available in a prior year, and since RDT&E money is good for two years, the way they applied it for FY85 funds is they looked at unobligated funds as of the reports of 30 September, and then applied a 4.9% reduction to the unobligated balances at the program

element level for those programs which had unobligated balances as of 30 September. That part of it has caused a little bit of a problem because the world has continued to turn since 30 September, and programs have continued to obligate FY85 money, but we have not found that that's causing us a significant problem. Most of those can be adjusted through minor below-threshold reprogrammings.

The total reduction to RDT&E in the Army out of the FY85 column came to $19 million, and that's spread, as I say, against all program elements that had unobligated balances as of 30 September. For FY86, the reduction came to $235 million, again applied equally by OSD at the program element level.

We in the Army, at this point in time, have further spread that reduction down to the project level. That does not mean that once the individual commands start working at the project levels, they cannot reallocate money between projects. And that will probably be done, but as a start point we did further allocate equal reductions to each RDT&E project, which is the next lower management level below program element that we manage out at Headquarters, DA.

The funds are being withdrawn at the present time. We already have documentation from OSD for the sequestered amounts to be withdrawn from the Army. That documentation requires us to have the funds withdrawn from the field by the close of business today. So those instructions are out to the field and in effect, we already have the FY86 money in hand and we're getting FY85 money back by close of business today.

One point you need to be aware of when you receive the Congressional Descriptive Summaries, or the PEDS, as was referred to yesterday in this group, the instructions that we have received from the Office of the Secretary of Defense are that the FY85 and FY86 columns which are displayed in the Congressional Descriptive Summaries will _not_ reflect the Gramm-Rudman reduction. That's the instructions that we were given. So when you look at those, you need to be aware that those reflect the Appropriation Act and the 85 dollars that were previously appropriated, and they do _not_ have the Gramm-Rudman reduction applied in that material.

Are there any further questions on Gramm-Rudman that I could answer at this time?

Question

I have a question about R1P1 and things like that -- will they or will they not reflect Gramm-Rudman?

Colonel Ramsden

R1P1s will not show Gramm-Rudman. All the budget justification material going to the Congress, as we understand it, will not

reflect Gramm-Rudman; however, I do believe that there is a second set of justification material that may contain that. But the official documentation will not reflect it.

Question -- cannot be heard

Colonel Ramsden

Those instructions were put out by OSD common to all Services.

Question

Colonel, on your 87 figures that go in, have they been . . . down since the impact of Gramm-Rudman?

Colonel Ramsden

Gramm-Rudman, at this point in time, does not apply to FY87. The President is submitting a budget and it's public knowledge, I think, through the Washington Post, that the Department of Defense will go in with 3% real growth. We, in effect, were required to come down close to 3% real growth back in August, and we just had adjustments based on the normal scrub of things during the fall. If the Congress passes the budget which the President is submitting, then there should be no sequestering of funds in FY87.

Question -- cannot be heard

Colonel Ramsden

I don't think it did. First of all, there was a specified dollar amount that had to be sequestered for FY86. That dollar amount didn't change, and the DoD share of that dollar amount, which was about $11.7 billion -- it was 50% that DoD had to absorb of that $11.7 billion figure. I think the issue with GAO, as I understand it, and I don't claim to be an expert, there was some prior year money which the Congress did not move forward but they reappropriated, in effect, into the DoD budget. I think the issue had to do with whether or not the percentage should be applied to that particular pot of money that was, in effect, reappropriated into the DoD account. We in the Army have not been impacted by any further reductions other than what we were initially told about two weeks ago.

For my main comments today, what I thought would be useful to this particular group is to talk to you about the process that we in the Services go through in our planning, programming, and bud-geting. My assumption is that although many of you have heard the term "PPBES," it tends to be a rather complex subject. A lot of people tend not to know too much about it -- to include a lot of people in the government -- and I thought it would be useful to use this flow diagram to explain that process with some emphasis on when we produce certain documentation and when we can or cannot

release that documentation to industry through DTIC or through the TILOs, as discussed yesterday by General Cercy. (Vu-graph unavailable)

I wanted to start, rather than at the top, down here in the place called President's budget, down in the lower third. Yesterday a question came up with reference to the availability of the PEDS, and was there anything that we could do with reference to trying to expedite the PEDS to the TILOs so that they could be made available to you, or to DTIC in the case of unclassified versions. I wanted to start by telling you where we are with reference to the FY87 budget submit, and where we are with reference to the preparation of the PEDS that support that FY87 budget submit.

We locked down our final numbers for the FY87 President's budget on 17 January. A lot of people think that that got locked down earlier than that, but in terms of our database and knowing exactly where we stood in terms of dollars at the program element level, that did not occur until January 17th. Once we lock down the numbers, then we have to, at that point in time, be sure that the narrative justification material, which is what the PEDS are all about, in fact tracks with those final budget-locked numbers. So as soon as we lock, we have several things that we have to do and one is to get those final numbers up to our support contractor that helps us on preparing the PEDS. We have to go out to all of the DA staff agencies that write those narrative justifications and be sure that their narrative justifications are now in sync with the final budget-locked numbers and the guidance that we have received from the Office of the Secretary of Defense. We have to be sure that all that material gets properly recorded, is proofed, gets a quality check, and finally gets printed. We are in the process of doing that right now. It takes us about a month to go through all those wickets to include the printing process, and we are on target at this point in time to deliver the PEDS to the Congress not later than the 22nd of February. So the earliest that we can produce something to get it to the Congress and subsequently to the TILOs, in terms of the classified documentation, is about 30 days after we hit budget lock as a general rule of thumb. There's not much we can do to expedite that, given the steps that I've briefly touched on that we have to go through. We will distribute to the TILOs the week following the 22nd of February, by mail, the classified version of the PEDS. The unclassified version of the PEDS are normally produced about 30 days later than that. We have to go back to our contractor and have all the classified material taken out. Then we have to go through the same process in terms of going to a printer. Now, we go to an expedited printing process and pay a heavy surcharge to get the classified ones produced so we can get them to the Congress to meet their demands. We do not pay that surcharge in terms of getting unclassified versions prepared because we don't feel we have justification to do that. So about 30 days later -- that is, toward the end of March -- we would normally have the unclassified versions available for distribution to the DTIC. It's my understanding, then, that DTIC requires about 30 days to process the unclassified version so that

they are more routinely available to you. I will tell you that we have looked within my staff to see if we cannot expedite the preparation of the unclassified versions and maybe move that up about a week or so, but I cannot commit to that right now.

Question -- cannot be heard

Colonel Ramsden

We only give classified versions to the Congress, and that's classified at the confidential level by their ground rules.

Let me go back up to the beginning of the chart, then, and talk to you about the timeframe at which we start our planning, programming, and budgeting process, what some of the key wickets are, and when we produce documentation.

We start at the upper left-hand side with a thing called LRDAP -- the Long-range Research, Development, and Acquisition Plan. That's a document which, as noted yesterday, provides funding streams for 15 years into the future. Based on the current cycle, we're concentrating on the period FY88 through FY92, but it does go, in fact, in terms of funding streams out to the year 2002. I'll be the first one to tell you that anything beyond the first five years probably does not have a high degree of credibility. I think you all have that same experience in your business, so in terms of accuracy of potential funding, I feel fairly comfortable with the first five years, but beyond that period in time there are a lot of guesses going on as to where we're going to be in that particular timeframe.

The question was asked yesterday, is that document available to industry, and from an Army standpoint the answer that I have to give you is no, that document is not going to be made available. The reason for that is we have significantly changed the way in which we structure the Long-Range Research, Development, and Acquisition Plan. We have structured it, instead of just a listing of procurement and RDT&E programs, we've structured it into what we call Program Decision Increment Packages. It has become more encompassing in terms of eventually picking up different kinds of dollars other than just RDT&E and procurement, and what we in the Army are attempting to do is package all related resources into a discrete increment package so that when we make decisions, for example, to cut back on the production of a certain item, we pick up the R&D front end of that, if that's impacted, and we pick up the operation and maintenance dollars that may be impacted because we're going to be slower in fielding a particular piece of equipment to the field. So we have completely restructured the way in which we handle Long-Range Research, Development, and Acquisition Plans, and we've done one other critical thing that we badly need in the Army, but I think you will understand is fairly sensitive. That is we have prioritized various increments of those packages and we consider that to be a reasonably sensitive and close-hold

internal Army planning document, and I think when you recognize
that we have built increments and prioritized increments of
things, you understand the sensitivity of that kind of planning
information.

We started the planning process for 88 through 92 back last
summer. We distribute that Long-Range Research, Development, and
Acquisition Plan to the field. From those commands that receive
RDT&E dollars and procurement dollars, we ask them to put in the
recommended funding streams for base program and various increments
of those programs. Then we go to the user, the Training and Doc-
trine Command within the Army, and we ask the user to prioritize
those increments. After the field, in effect, has done their
thing in terms of those two main operations, then it comes to the
Department of the Army and we have, in the November timeframe, a
very senior, high-level review of both the dollar streams and par-
ticularly the relative priorities of those increments. We do that
in a mission area format. For instance, the mission area of close
combat, which includes things like tanks, Bradley fighting vehicles,
infantry support weapons, etc., those kinds of things are all . . .
together as a package; C-4 is looked at as a package, etc. But
the Vice Chief of Staff of the entire United States Army chairs
that group and looks at those increments in great detail, and the
relative priorities of things, and we get direction from him, then,
in terms of making changes based on his guidance and the senior
Army leadership guidance.

That document, then, after the four-star review, becomes the
start point for building the Army's next five-year program, of
which we are in the initial formal stages at this particular moment.
That five-year program is called a Program Objective Memorandum.
All the Services are required to submit a Program Objective Memo-
randum, laying out their recommended five-year programs to OSD in
the May timeframe. So between now and the middle of April, we
will be working very intensely, using as a baseline our Long-Range
Research, Development, and Acquisition Plan, to construct a five-
year defense program for the Army which will comply with the dol-
lar levels that OSD has given us or will give us as we progress
down the road. That becomes a rather dicey game because tradition-
ally what has happened to us is we get an initial set of guidance
about now and we start off building what we think is a good solid
program, and along about the first part or middle of April we tend
to get significant changes in dollar guidance. Part of that re-
sults from the ongoing Congressional hearings. Last year, for
example, you remember the President in April made an agreement
with the Congress that he would accept 0% real growth in the FY86
budget, but he wanted 3% real growth in the 87 and 88 budgets.
Well, we were considerably above that in 87 and 88, so we got new
guidance toward the end of POM building, and we had to do some
rather drastic things in order to comply with that guidance late
in the POM development cycle.

We submit the POM, then, to the Office of the Secretary of Defense in May, and we produce at that time, or will be producing in the Army, a description of the program elements in a similar format to the Congressional Descriptive Summaries. Now, that's a change. In the past we used to have a computer generated format called an RD-5. We have, in coordination with OSD, worked out a plan whereby in effect we will stay with the Congressional Descriptive Summary type format all three cycles during the year where we have to submit budget justification material. In the long run, I think that's going to work out pretty well for us. We implemented that last year with the September budget submit, and we in the Army are going to implement it this year with the POM submit. That will be a classified document. We will not produce an unclassified version of that, because again, that is basically planning information. But the classified version will be made available to the TILOs with certain restrictions as to the future year dollars that can be disclosed outside of the Department of Defense.

During the summer, basically two key events occur. One is that that POM which we submitted to the Office of the Secretary of Defense is reviewed by the programmers of the world that sit in the Office of the Secretary of Defense. Dr. Chu and his group have the lead on that particular review. What are they looking for? Well, they're basically looking for major issues. They're looking at major system proposed new starts. For example, two years ago the Army proposed the LHX helicopter as a major system new start. OSD must pass judgement as to whether or not they are going to allow the Army to start a major system new start of that order of magnitude. Is it affordable in the out years if we start the R&D at that particular point in time? They're looking at how well we have complied with defense guidance. An example would be in basic research and exploratory development, we get specific guidance from DoD as to how much real growth we're supposed to have from year to year. If we have not complied with that guidance, they will make a major issue of that and either direct us to fund it from other resources, or they will potentially give us some additional resource to do that, although that occurs very infrequently. We always have to eat it!

So that tends to be a macro level major issue oriented review to determine whether or not we are within the guidelines of Defense guidance, whether we are doing the things that the overseas commanders want us to do with our resources, do we have the proper balance between modernization and readiness. Those are the kinds of issues that get sorted out during the summer, and the results of that review come down to us -- over in the right-hand side -- in what we call a Program Decision Memorandum. That normally comes down to us about the 10th of August, and we must make the adjustments then from that point until about the third week in August to make sure that our program complies with the instructions that we receive in that document, and the dollar values that we've been told to move around in order to comply with OSD guidance.

Concurrent with that review cycle going on at OSD, we also send that Program Objective Memorandum out to our field commands and we try to get that down to a fairly low level so that the field can see what final decisions we at Headquarters, DA, in our infinite wisdom may have made. In some cases we may have made some dumb decisions and we may have left some unexecutable programs out there. We may not have provided enough funding in order to have executable increments. So what we ask the field to do is not to do a macro level review, but to do a micro level review of each program element and each project to determine, in fact, if we have put together executable programs, and if we have not, to come back to us on a zero sum basis with trade-offs in order to be sure that all of the programs are structured, from a fund standpoint, in an executable manner. I emphasize the point that that's a zero sum ballgame. There's no free lunch in that process. If we found a program that is short $10 million that the field believes very strongly has got to be plussed up by that, it's their responsibility to come up with a $10 million offset. Those issues come in to us the latter part of July, and during the month of August we work very intensely in order to resolve those issues which are submitted from all of the developing agencies. We work in close coordination with the user. There's never a problem in terms of everybody wanting to plus up programs, but since it's a zero sum ballgame, the issue becomes are we willing to take money away from those projects that have been offered up for decrements.

We then, during the latter part of August, have to reconcile what OSD has told us to do in the Program Decision Memorandum, what the field says we should do in terms of the POM to budget issues, and then those are all reconciled, then we resubmit, then, our five-year defense program to OSD about September 10th. Now, the emphasis at that point in time switches to the first year of the five-year defense program. If we, in fact, go to a two-year budget cycle this year, which is the DoD position and is the Authorization Committee position but not the Appropriation Committees, we may in fact be looking much more intensely at 88 and 89 in this coming year rather than just focusing principally on 88, as we have tended to do in the past. So you may see much more emphasis on the second year of the budget, rather than just the first year of the budget when we reach that particular point in time.

Once we resubmit that budget to OSD, we again have to prepare budget justification material for use by OSD during their fall review. That budget justification material this year was called the RD-5 and again, as I mentioned earlier, the format for that is very similar to the Congressional Descriptive Summaries or the PEDS. We did make that available in a classified version, confidential level, to the TILOs, again with certain restrictions in terms of out-year projections of funding. The reason we put those restrictions on there as far as out-year projections of funding is that OSD still has to review that budget and it's a little difficult for us to justify giving you out-year funding streams when we haven't even given that to the Congress yet.

During the fall, the focus of the OSD budget review switches from a programmatic look to a budget look. Now, instead of the programmers of the world, the Dr. Chus of the world looking at our program, we have the OSD Comptroller types looking at our program. They tend to hold a series in RDT&E of informal hearings. There are normally about 60 hearings held. They tend to focus on high-dollar value programs. They focus on programs which have poor prior year obligation and disbursement rates, and they, then, go through in a fairly nitty-gritty manner and make adjustments to our budget. In some cases, those can be fairly programmatic type adjustments, but in the majority of cases, they tend to be budget type adjustments, taking into account the latest information on what the Congress has done in the prior year. For example, this past year in FY86, the Congress killed a program and the Army still shows it funded in its September budget submit, and that can happen because the Appropriation Committees didn't act until after we had to submit that budget. Then obviously, it would make sense to take that money out of the budget, and they will direct us to do that and take that money and say, "thank you very much." We try to anticipate those kinds of things before the budget goes in, but again, the way the Appropriation Committees have worked the last two years, they don't give us good information until after we've had to meet that September submit.

Once we go through the OSD Comptroller wicket -- and that lasts from September through this year until January 16th -- then we are in a position where we know exactly what our budget is going to be for the upcoming fiscal year, and we can finalize the budget justification material which becomes the Program Element Descriptive Summaries, and I've already talked to that particular point.

We then, of course, have to go through the wickets over in Congress. I think this audience is probably pretty much aware of what we have to go through, but basically we deal with four committees over there: the House Armed Services Committee, the Senate Armed Services Committee, the House Appropriations Committee, and the Senate Appropriations Committee. They all have defense-related subcommittees, numerous hearings, numerous nitty-gritty adjustments by the staffers over there, and of course, it goes through authorization first and finally through the Appropriations Committees. Certain selected programs, of course, have to be reviewed by the Intelligence Committee.

In addition to the Program Element Descriptive Summaries, which I know you find very useful, the Committee reports I think would be of great interest to you. There is a service -- and I don't know the name of the company -- that publishes summaries of the conference reports that occur. We found that to be very helpful. In fact, we've signed up to get those because one of our responsibilities in my office is to track to be sure that we don't release money that Congress hasn't properly authorized and appropriated, or that we comply with the specific directions of the various committees. So I would recommend to you a valuable source

of information is a summary of what the various Congressional committees have done. And you're talking about six, really. You have the HASC and the SASC, and the HAC and the SAC reports, but you have the Joint Conference Reports, which are extremely critical and you need to be aware of what the Joint Conference does, because in some cases that overrules what the separate committees may have done in their particular reports.

During the time that the budget is over on the Hill being debated, we also send that budget out to the field again and the field has the responsibility to prepare their obligation plans. In other words, how do they plan to go about accomplishing the work; what contracts are they going to let; when do they plan to let those contracts? That's very critical that we do that planning in RDT&E because although our money is good for two years, we are required by OSD and the Congress to only ask for the money that we're going to actually obligate in a given fiscal year. So although the money stays good for two years, in effect if you do not get 90% of your money obligated, and even more important than that, 50% of your money disbursed in the first year of availability, we stand a strong chance of losing dollars in a subsequent budget review by the Office of the Secretary of Defense. So we're anxious to make sure that we get those contracts let in the beginning of the year as much as possible, and we're anxious that when you get a contract, that you submit your billings in a timely manner so that it properly reflects in our disbursement rates.

That is a short, relatively simple summary of the programming and budget process as it applies and is handled within the Department of the Army. I hope that will give you some feel of where the documentation is produced, when it is produced, what the critical windows are, and when, in fact, certain documentation can be made available to you.

Thank you very much.

Mr. White

Thank you very much, Colonel. Now we're going to hear some comments from the Navy. Our speaker here is Mr. Hugh Montgomery, who is currently Technical Director, Technology Assessment Division, Office of the Chief of Naval Operations. Mr. Montgomery has been working for the Navy for some time. His previous assignments include Head of the Technology Branch, Munitions Division, Surface Warfare Department at the Naval Surface Weapons Center; Research and IR&D Coordinator with NAVSEA on assignment from the Naval Surface Weapons Center; Planning and Programming Director in the Office of Naval Technology; and Navy IR&D Program Manager of the Office of Naval Technology. Mr. Montgomery has a B.S. in Physics and Mathematics from Mississippi College, a Masters in Physics from the University of Tennessee, and has completed all but his dissertation for a Ph.D. from the University of Tennessee. Please welcome Mr. Hugh Montgomery.

Mr. Hugh Montgomery

When I was asked a week ago if I had any prepared remarks and any notes from those, I said no, that I thought for the kind of informal meeting we wanted today, that it might be better to speak totally off the cuff and listen to some of the questions that I heard before today's meeting and respond to those. For those of you who know me -- and I see a lot of familiar faces in the audience -- I will be briefer than usual. My voice is not holding up too well because I had a nasty bout with the flu a week ago.

The Technical Information Program in the Navy, or the way that the Navy talks to industry in particular, is something that has been of great concern in a lot of people's minds, particularly for the past year. I had a number of questions outside this morning talking about what's happened within the Navy, how the structure exists today as a result of the disestablishment of NAVMAT. We do have a different Navy technical structure for information and for the technology-based world, and I thought I might make a few remarks relative to those things and see if I might be able to clear up a few points of misunderstanding.

There are two primary avenues that the Navy uses to talk to industry for technical information exchange. Both of them are in existence today in the same way they were a year ago. One is the NARDIC offices under our formal Technical Information Program. I think most of you know that we have offices right here in this area and Pasadena and also at Wright Patterson for industry access to classified information as long as you have the appropriate need to know. There are a number of documents totally available to you through those NARDICs. They are in existence now as they were before; however, the management chain that they report to is a little different, and so you may not have heard as much about them in the past year because they fell under the Chief of Naval Material before, and in the disestablishment of NAVMAT, they are now under the Office of the Chief of Naval Research. They are not as publicized as they were a year ago because the CNR had a lot of new obligations that he was handed this past summer, one of which was the responsibility to manage all the Navy laboratory system. Something entirely new for him, and with that kind of new responsibility, the additional functions were not left alone, but were allowed to continue under their existing management without as much attention from the Chief of Naval Research as might have otherwise been the case. I think as the reorganization of the Navy shakes out, and it's beginning to shake out now, you'll see an increased emphasis in the areas of information flow and communication. Marty Pearl is here who represents the Navy Technical Information community, and he'll be leading one of the seminars that follows this panel discussion. So be sure to ask him any questions about the way the structure exists today. I think you'll find that he is willing to talk to you, he can point you in the right direction, and you'll find if you look at it that the situation is not changed. Just remember that the boss of this

program now is the Chief of Naval Research, and he's the person
that you need to get to know. Right now it's Admiral Brad Mooney.

The other program which is well known in a segment of indus-
try but not in all industry, and it may not be as well known to
this audience as perhaps it should be, is the Navy IR&D Program.
As you heard when I was introduced, I was the Program Manager
previously. The current Navy IR&D Program Manager is sitting over
by the wall, Dr. Ron Culpepper. If you have an interest in discuss-
ing technical information with the Navy and talking about Navy re-
quirements and how we interact with you, get to know that man be-
cause he is a key in that process.

We, four years ago, took the Navy IR&D Program -- our manage-
ment of your IR&D -- really to ground zero to rebuild it. We re-
built it in such a way as to be more openly communicating with indus-
try. What we've done is for each Navy-assigned company -- and
there are about 90 or so of those -- we've assigned a senior indi-
vidual, either a GS-15 or SES, typically, if he's a civilian, or
an 05 or an 06 if he's military, to be what we call our lead
evaluator. That person is in charge of the technical evaluation
of that company, but also is in charge of communicating technically
both in terms of letting us in the Navy know what technology oppor-
tunities are emerging from that company's IR&D, but also letting
the company know what Navy requirements are coming out that will
be a future requirement for that company in its R&D area. We had
a lot of success with this and we had a lot of good communications,
both formal and informal. We found this to be a good vehicle be-
cause it's at the senior level, to be able to exchange not only
the evaluation of your R&D but also to talk in terms of where we're
trying to go.

For companies that are not assigned to Navy for management,
I would refer you to either the Navy laboratories that are working
in your area or the Navy Systems Commands that handle the technol-
ogies that you're associated with. For instance, NAVAIR would
be in charge of those companies that are aircraft-oriented. Each
of those activities has an IR&D focal point, and the job of that
individual is to manage the IR&D program within that command and
to communicate for that command and for the Navy to you our needs,
and likewise to communicate to us your accomplishments that we
would be interested in.

One of the things we're trying to do is to use industry as an
extension of our own technology base. In the days of shrinking
budgets and Gramm-Rudman, we're going to have to make the most of
all of our information, all of our technology. We really want to
work together with you to do that.

The bottom line is to try to communicate openly in terms of
our requirements and our needs . . . . . that is just now being
developed that it's a little too early to say exactly how this
is going to be promulgated, but in OP-98, the Navy R&D office,

which is where I work, we are for the first time issuing at the CNO
level technology-based guidance for the Chief of Naval Research
and the Navy Laboratory System and the Systems Commands. There was
a three- or four-page letter that was signed two weeks ago to the
Chief of Naval Research. It was a memorandum from OP-98 to say,
"here are issues that I would like for you to address in your tech-
nology based program." That is being followed by what we call a
TPAM. It's a briefing of about an hour, that I am one of
the co-authors of that is the Technology Program Assessment Memo-
randum. What it is is a broad view of some of the problem areas
that we see five and ten years away in Navy mission accomplishment.
The Soviet Union has some new aircraft that we can't defeat; we
have a problem here in accomplishing the mission; we make you
aware of what that aircraft is, what some of the ideas we have are
to deal with the problem. But then leave it open to say we need
help within our own and your technology base to solve the problem.
That's the essence of what the TPAM is. The first rough draft
was briefed yesterday for the first time to the Chief of Naval
Research. It's definitely not ready to go out yet, but I hope by
later in the year to be able to not only put it in the NARDIC
offices, but to have it available to Dr. Culpepper to brief com-
panies as part of the IR&D on-site review. We use the on-site
review process as a two-way communication street. We don't want
to just check you out; we want to be able to show you more of what
we're trying to do.

This is really preliminary, in that the document is in very
rough form right now and may not be out within the year in such a
form that it could be released. But it's something we're working
on and we're trying to be more open in terms of where we think our
problem areas are, which I think will influence the way money is
invested, both in our own technology base and in yours.

The final remarks I'll have is just to say we want to communi-
cate, we want to share with you, and we want to run parallel in
our program so we don't conflict, duplicate, to work together to
have the best technology program available within the government
and the Department of Defense.

Mr. White

Thank you, Hugh.

Our final Service speaker is Mick Flynn from the Air Force.
Mr. Flynn is currently Deputy Special Assistant for Science and
Technology to the Deputy Chief of Staff for Research, Development,
and Acquisition, Headquarters, U.S. Air Force. Mr. Flynn entered
the Air Force in 1962 as a Research and Development Project Offi-
cer at Detachment 4, Aeronautical Systems Division, Eglin Air
Force Base in Florida. He served as both a Research and Develop-
ment Project Officer and a Long-Range Research and Development
Planning Officer for Conventional Weapons until his release from
active duty in January 1966. After getting out of the Air Force,

he accepted a Civil Service position with the Air Force and has
been in a number of positions since that involve research and de-
velopment. Mr. Flynn earned a Bachelor of Science degree from
Colorado State in 1962, an MBA from the University of West Florida
in 1974, and graduated from the Industrial College of the Armed
Forces at Fort McNair in Washington in 1981. Let's give a hand to
Mick Flynn.

Mr. Mick E. Flynn

Good morning, ladies and gentlemen. Thank you very much for
inviting me here this morning. To carry on the theme that General
Lamberson started yesterday, I'd personally like to thank Mr. Walt
Blados for the support that he's given me in helping prepare for
this session, and also to offer him the opportunity to answer
any questions you may have concerning technical information, since
he's our expert.

I really don't have a general theme this morning. What I want
to do is just share with you some of my views from where I sit at
the Headquarters in the Air Force. I work primarily science and
technology programs, which means 6.1 basic research through 6.3
advanced technology development. I do get exposed somewhat to the
6.3B and 6.4 programs, although that's not my primary responsibility.

As you heard from my bio, I have been in the Air Force Labora-
tory System almost all of my professional career -- over 20 years
now -- and several of those jobs have involved long-range planning,
both at the laboratory level and at Headquarters, Air Force Systems
Command. I'm not actively involved in long-range planning right
now, although just to carry out our activities in the Air Staff,
we do have to pay attention to where we're going, the technological
trends, and how that reflects on our overall budgeting process.

Yesterday, General Lamberson said that the Air Force was com-
mitted to supporting the exchange of R&D information and the im-
portance of getting that information out to folks like you. It's
important for us to also get feedback from industry as to where
you see the technological trends going, and also how you can help
us improve our technical information exchange program.

While we want to maximize the information that we can make
available to you, we're in a Catch 22 situation where we have the
dichotomy of being told, essentially from the Presidential level,
that we want to restrict the amount of information that's being
made available to the general public. In that regard, we've been
getting information down from Leo Young and his associates, which
has helped us structure a program through such things as better
information on how to mark unclassified documents in the proper
distribution statements. That information greatly assists us in
deciding what information can be released to the open public and
targeting the particular audience where that information can be

made available. I review a number of documents in the position I
hold for security, for public policy compliance, and I find it
very, very difficult to really have a clear-cut guideline of what
I can and cannot release. A lot of that information is coming to
us without the distribution statement, so when you in industry want
an open publication for a marketing brochure or something, or a
technical report that is unclassified and you want it for open dis-
tribution, I'd suggest that you give a lot of thought to the dis-
tribution statement that you put on that document. That will great-
ly assist us in processing for clearance through the public infor-
mation channels.

One thing that I have found out from my years in working in
long-range planning is that it's a very, very difficult task. It's
a difficult task to generate the planning information; it's diffi-
cult to generate the scenarios 20 years in the future, where you're
going to be operating; it's also difficult, although I've never
been directly involved in the program, to get that information out
to the proper people at the proper time and in a timely fashion.

These charts were pulled from General Lamberson's talk yester-
day. I just want to have them up to re-emphasize that we really
are committed to R&D planning and the effective and timely dissemi-
nation of that information.

I'd like to get back to the central theme of the symposium,
which is R&D planning information. As I mentioned earlier, it's
becoming, in my mind, much more difficult to do long-range planning.
It's getting particularly difficult, as Colonel Ramsden pointed out,
also to do near-term R&D planning. It seems as if we're working
on three budgets all at the same time. Things like Gramm-Rudman
aren't helping. We're getting more and more restrictive language
from Congress, and it was pointed out that you also need to care-
fully follow the type of language that we're getting -- the HASC,
the SASC, the HAC, the SAC, and the joint conferences. A lot of
the guidance that we're getting is becoming more and more defini-
tive. We're getting direction on the type of programs to fund.
We're also getting direction on who to go to. So we're getting a
lot of conflicting information and a lot of outside help in our
planning activities. That totally disrupts our programs, it total-
ly disrupts what you're trying to do, and it's most difficult to
start with but with the perturbations we're going through now you
really have a significant challenge.

In addition to things like Gramm-Rudman, we're also getting
taxed in a general fashion more and more in our programs. The
SBIR (Small Business Innovation Research and Development Program)
imposes a tax on us which also makes it difficult for us to do
long-range planning because a certain portion of our budget is
sliced off, and essentially we really don't know what kind of pro-
posals we're going to receive. We send out information to help
guide industry and small business, but as far as getting it really
well focused, we really haven't come to grips with that program
yet. That's a long-range planning challenge for us.

When I went back to the office yesterday afternoon after General Lamberson's talk here I had several folks waiting for me on one of our program elements. They had just come from down in OSD. In talking about what some of these things have done to their program -- the general reductions and the SBIR and general tax for some long-range planning activities, a number of different taxes -- the program, from the time we submitted it in the President's budget in FY84, two years ago, the program now, today, is down 20% from what the President's budget had. It probably will even come down some more, depending on how the Gramm-Rudman thing does finally shake out, because there are some set-asides that can't contribute to the Gramm-Rudman Bill. Twenty percent of a program that was planned two years ago is a significant amount of change, and that just disrupts any planning activities that you may have. So you need to follow the Gramm-Rudman stuff, you need to follow what Congress is doing.

And that brings up the next point that I would like to make, and that is while most of the talk today has been about providing information through our technical information offices, getting Congressional descriptive summaries and documentation like that, one thing that's never really going to go away is having an effective marketing staff. The way that I have found that you get current and timely information is to have people come around and talk to the pressure points in all of the systems -- the Air Force and the Navy and the Army, DTIC, DLA. That is just going to be an essential function. I don't see any way of getting around that, no matter how good a job we do in disseminating technical information to you.

Now I'd like to shift gears a little bit again and re-emphasize some of the PPBS information that Colonel Ramsden talked to you about and give you my perspective of some of the key dates that affect my particular position on the Air Staff. I'd start with the same date that Colonel Ramsden did, and that is when we submit the President's budget. We normally do that in January; this year it's going to be in February. The program element descriptive summaries are a key document in finding out what we're going to do in the coming year. Certainly there are some changes this year that aren't going to be reflected in the document, but in general over the years, that is a key document for you to consider.

The next thing that we do that's vitally important to me is starting to develop the POM, the Program Objective Memorandum. We start that this month. We will be getting the POMs from the major Air Commands within the next week or so. They started preparing those documents last summer, and this will be for FY88. That document will be worked in great detail until May, and in May that document will be submitted down to OSD. Based upon our proposed POM, OSD takes that information and disseminates it to its technical people in OSD. In my case, it would be Research and Advanced Technology. They scrub our budget and then we enter what we call the issue cycle, which starts in early summer. The issue cycle is the reconciliation between what the Service came up with and what OSD recommends as changes. That goes to the DRB, which is Secretary Taft level, for resolution and the four-stars from each of the

Services. It's reconciled; it comes back to us; we prepare an RD-5.
The next step in the cycle is what we call the PBD cycle, the Program
Budget Decision cycle. That is where the Comptroller down in OSD
looks at our past execution in the previous year, and the key figure,
as pointed out earlier, is 50% execution. (Execution means money
spent.) That's the key thing. If you haven't expended 50% of your
money, that is a target for a fund reduction. That also goes through
the PBD cycle and also goes for final resolution to the DRB, the De-
fense Review Board. Then, of course, once we get that we modify the
programs, we lock up the computer, we write the descriptive summar-
ies, and then we start the cycle all over again, and that forms the
President's budget. This year we're going to be very late. Every-
thing is late this year.

In summary, I do want to re-emphasize again, as I mentioned,
what General Lamberson said yesterday. We are committed to this
program. We do solicit your feedback. We solicited it this morn-
ing, we solicit it in written findings of this meeting. But one
thing I do want to point out -- in the present environment, I think
it's extremely unlikely that we're going to be moving a significant
amount of resources around to do more in the area of long-range
planning and technical information dissemination. The feeling that
I have from sitting where I am is that we're going to be working
with what we have, so the type of information that we would like to
hear back from you is how do we do better with what we have. I
just don't think we're going to get more. We would like information
back from you on what you feel the value of these information offi-
ces is. Is it of value to you? If it isn't of value, we ought to
rethink how we do business. We could use those resources somewhere
else perhaps more effectively in the technical information exchange
program. But that's the type of information that we'd like to hear
back.

Thank you for this opportunity to share some of my views.
I'll be most happy to answer any questions you may have.

Mr. White

Now we're going to hear from the other side of the fence. This
morning we have Bill Zeigler, Vice President responsible for Busi-
ness Planning and Advance Projects, Goodyear Aerospace Corporation.
Also reporting to Bill are Business Planning and Information Re-
sources Management. He appears to be one of those rare birds, like
myself, in the aerospace industry that has spent most if not all
of his career at one company. I joined North American Aviation
when I graduated from college, and I've been there ever since.
From the bio here, Bill Zeigler joined Goodyear in 1947. Please
welcome Bill Zeigler.

Mr. W. S. Zeigler

Mr. White, members of the panel, ladies and gentlemen. I'd
like to begin by thanking you for the opportunity to appear on the

panel which addresses the workshop subject of improving the industry/
DoD planning information exchange process. On behalf of the busi-
ness community, I'd like to express my thanks to Mr. Montgomery for
being here to represent the Navy's viewpoint. I'm sorry we were
unable to hear a prepared statement from the Navy yesterday
afternoon.

I listened to the introduction that was given to me. I'd like
to put myself into perspective. I was fortunate enough to have the
judgement to come down here and sit and listen to this yesterday
afternoon. I guess this morning I have to categorize myself as
being different from most of you. All of you on this subject are
speaking from experience. Frankly, I'm a user, not a collector of
information. I've taken for granted all the numbers that people
like John Keener, Dick Vaslof, Marie . . . feed to me whenever I
and the rest of our management ask for them. When you get numbers
down on paper, you take them for granted. You assume they're right
and somehow they have a dignity that sometimes isn't there. I
didn't have the full realization of all the government information
that was available that I thought we were getting that, in fact,
we're not getting. I didn't realize how much interpolating, extrapo-
lating that they had to do with the government information they do
get, with information that comes in by osmosis, with information
that comes in from secondary sources like AV Week, Aerospace Daily,
the Wall Street Journal, services like DMS, Frost and Sullivan.
I'm frankly happy that you're addressing what I consider to be an
extremely important point, particularly in view of the direction
that I see business management taking. I think we're going through
a cultural change. So I guess what I'm trying to say in brief is
you invited a Cub Scout here to go on an Eagle Scout type hike.

A quotation credited to John Gallsworthy reads, "If you don't
think about the future, you cannot have one." When we address
improving the planning information exchange process, we are talk-
ing about our future. Done thoughtfully, supported by construc-
tive actions, any expansion of dissemination of information to
industry will improve the interaction between both sides of the
equation that some people like to call the military/industrial
complex.

Consistent with Norm Augustine's "View from Industry" speech
yesterday, I'd like to comment on three areas. First, issues in-
volved in improving the information flow to industry; second, the
data release system; third, benefits to both government and indus-
try if the information flow is improved.

Taking issues first, in my mind two stand out -- how much in-
formation should be disseminated and to whom, and what kind of
information. All of industry needs a whole lot of information,
imposing a significant job on our Defense Department partners.
However, with any given contractor, only data relevant to his con-
tractual obligations or for the future, data in areas where he has
technical or facilities capabilities and wants to use them in
future requirements is necessary.

Industry can upgrade its performance with timely access to the full five future years of FYDP data starting with dollar requirements and, where appropriate, units in the specific areas of RDT&E, procurement, and O&M. If you like, I'll try and answer questions later on on how we handle the vagaries of the budgeting environment because some people challenge how good the data is in the fifth year. But I have to tell you, right now we're doing ten-year planning, and we've had to face that same challenge. I believe industry can work with it and can work around it. I think it varies by company. I think we're all maturing in our ability to know how to use it and to use it more effectively, and learning how to convert data into knowledge.

Access to any segment of the FYDP seems to be the most sensitive issue that I sense from the talks here, but I don't want to overlook the other tools that are already accessible. Now we're getting into acronyms that, frankly, were new to me. But PEDS -- we do need all of them. I'm starting to understand what they are and how they fit into our system. Our people know what they are, but they've been educating me. We need all of them and we need them particularly as fast as possible. I thought the gentleman from Singer that talked to General Cercy yesterday articulated it very well.

We need the program planning summaries, and we need the work unit summaries, and we need them on a current basis and organized so they can be searched in a logical, efficient manner.

I heard some references to IR&D, particularly from the government side yesterday. I'd just like to state that my company doesn't want or expect access to other companies' IR&D material, and in talking to other people in the business, I don't believe the defense industry is trying to access the IR&D base. On that particular one, if it's of any concern to the government side I personally consider it a non-issue.

With reference to the government facilities for data, I know business would like to acknowledge DoD's efforts in establishing the Defense Technical Information Center, DTIC, and then the Services for the Tri-Services agencies, TILO, NARDIC, and AFIFIO. I think I represent a consensus when I say industry feels the mechanism or the system is in place. Most or all of us use it.

Our concerns are about the timeliness, the form, and the limitations that are placed on what is released. These have been expressed.

Not only does the government have a fine system for disseminating information, but I feel the Defense Department has an established control system which can control what, how, and to whom it is released. What I'm referring to is the security clearance system. Some of it is referenced as being unclassified, but I think, frankly, to do most of what we have to do we need access to classified material as well as unclassified. When there is any question

as to whether or not we ought to have it, we have clearances and
they should access us into that information, or we don't have them.
If we don't have them, we're not permitted to get that information.
The second part of it that I think occasionally is forgotten is
you have to have a need to know. If we have a need to know, I'd
argue we need to know what's in that material and we'd like to have
access to it.

As a businessman, I was trained to understand that whenever you
participate in a deal, no deal is ever a good deal unless both sides
profit from it. There are benefits to both industry and to govern-
ment. I'm suggesting three. First is more competition. That's one
I'm not sure that industry can figure out how to share in, but if
the government will release more information, I'll guarantee if
you have faith in the economic system, the free enterprise system
that we've established in this country, if you put that information
out there there's always a new kid on the block that sees it as a
way to enhance his business and make a buck, and he'll be in there.
If there are competition advocates in the audience who say, "no,
you shouldn't have this," it's like being against marriage, mother-
hood, and apple pie.

The last two really go together, and here's really where I'm
getting into the area with which I have a personal acquaintance-
ship and I may have to do some ad libbing! With more information,
the government and industry will experience improved productivity.
The benefit to industry is those of us that use it the most effi-
ciently and the most aggressively are going to start moving out
ahead of their competitors and will carve out a larger market share.
On the government side, it was referenced that the IG had done a
report and had come up with the recommendation that the release of
more information and better information could save $32 million.
Frankly, I think, knowing the direction that we're heading in and
the way that we use that information, we could expect to improve
our productivity up to 10% of the dollars that are going out. If
you want to talk about $100 billion procurement RDT&E budget, I'm
really talking to billions of dollars, not millions of dollars.

I think I need to talk a little bit about my own company. I
know some other companies are certainly as aggressive, maybe more
aggressive. I know I've talked to some companies, and when I talk
10-year planning, the Board Chairman said to me, "Good heavens,
Bill, I can't get my people to think two years ahead." But I know
we're all moving in that direction. I know there's been testimony
over in Congress by people from the Defense Department and some
retirees talking about 10-year planning in terms of submitting
information to the Congress.

What we're doing is we're going through a cultural change.
If I go back 10 years ago, we managed our business by talking about
a sales forecast. When you get into the defense business -- I
came out of the tire business. In the tire business, when you get
a new order today, you ship it out of stock this afternoon and it's

a sale the same day. In the defense business, when you get a contract, by accounting procedures that doesn't move out the rear end of our cycle as a sale until about two years later. So if we try and manage by sales, it's a little like driving your car looking in the rear view mirror. So we're migrating from looking at sales to looking at new orders. We're migrating from a one-year sales forecast to a ten-year new order forecast.

We did our first ten-year new order forecast -- though it was really a sales forecast then -- we did our first one in 1977. Each year in the spring, as we get up to address our Divisions, I go back to that first forecast -- and we've improved since then -- and I use that as kind of a report card because our people said, "No way can we look out ten years and tell you where we're going to be." But I tell you, right now they forecast where we would be in 1987, and based on the one that we're looking at now and will be working with this spring in 1986, we should be within about 3% of where they said they would be back in 1977. It won't be all the exact same programs that they projected it would be, but we've developed a mechanism for taking into account the vagaries and the political system and the world economic system and what the Russians are doing. And we found a way of moving other substitute programs in there, and we are meeting our goals.

What I'm addressing when I say we're hitting it that close is on a corporate basis we're hitting it that close. What we need is more and better information out of the Defense Department. When I break it down to the division level, and then within the divisions we have business areas, we're missing it by 30% and 40%, and that's where we need to sharpen our abilities. What I'm after and where the productivity comes from is we take the numbers that we project in there, and we know just by simple four-function mathematics so many sales require so many people and therefore, in our case, a personnel unit produces about $100,000 of output every year. Out of that we can calculate how many people we need. We know in the past that our people have taken about 150 square feet of floor space. Out of that we can calculate how much floor space we need. As we start bringing in more personal computers, we're adjusting that 150 foot figure to 175 square feet. We know that a square foot of floor space may cost us, let's say, $100 a square foot. We can calculate what our capital needs are, not only in the coming year, but brick and mortar, by the time you get done with an architect and all the planning that has to go into it, you're probably looking at a facility that will go in three years from now. We need to know what our cash flow is going out over ten years so we can project it into our overall system and finance ourselves adequately. We need to know what percent of our population will be engineers, what percent are business development people, production people, finance people. Particularly in the engineering groups, we need to know how many of them need to be aerodynamicists, how many are electronic engineers, how many of them are programmers, how many of them are mechanical engineers and what have you. We need programmatic data to do that. I won't argue with the government person who says, "but I can't tell you for sure, I don't have that program

in place." But I was interested in hearing from the Colonel this morning when he referenced for justifying their R&D program, they had to justify that they would follow through on the LHX and here are the reasons why it would migrate from R&D into production. I'm willing to take his word for it. I'm willing to accept the fact that some things may happen to him and to the Army that might kill the LHX program, and I'm willing to factor in adjustments that will take that into account. But I've got to have that kind of information.

I can go on and on. I'd just like to emphasize that I hope that more meetings like this will sponsor an opening of the transfer of information between government and industry, and that it will be done in an environment where both sides recognize there's a benefit.

I'd like to close with just a few observations. There will be some working groups here. Maybe because I am different from some of you who are experts in this particular field, I might be a little bit better off. I commented on IR&D. I'll close by saying again I don't think IR&D ought to be a subject of a whole lot of discussion. I don't think IR&D is what business is after or has to have out of the government database.

Second, there is something in this thing for both the government and industry, and I hope both sides will address it in addressing the problem.

Third, and maybe most important, I've gotten myself involved in projects like this in the past, and where they've given me one that's unstructured and it's difficult and I really didn't know what I was doing, I went to work and started learning about it and after about three months of concentration, I learned so darn much about it that I got myself in the middle of the forest and I couldn't see the forest for the trees. Maybe you want to step back and ask yourself if you know so many details about this problem that you're trying to solve the whole problem at once, and you feel a compulsion and a need to do that. From where I sit, I don't think we're going to get everything that we would like to have. I guess I'd urge the workshops to take a look at where the real leverage points are, what portion of that government data that we're not now getting will do us the most good, and can you really pinpoint it down to one? If so, what is that one? Then out of that, what kind of a strategy can we work on with the government that would open it up? Some of you have talked to me and said it's going to take officers of the companies. I listened to General Babers yesterday, and frankly, I was incensed because I've been taken to task for short-cutting the system on occasion and making end runs to either preserve a program or help a program manager preserve a program, or what have you. After I had lunch with him I understood what he was saying. He said, "I think you're going to have to go above me and get help." Some people here have said, "We think we're going to need help from a lot of officers out of industry." I think with some selling -- and I have to tell you that not all my peers in industry understand what I'm talking about.

Not even all my peers in my own company understand exactly where my guys are going. But they're getting there. It's going to take a little bit of selling to get them on it.

We could make an end run. We could head into the levels of Weinberger, Taft, and Hicks. I don't really think that's where the solution is. I think maybe you need help from a lot of us. I think a lot of you have to do a lot of help in selling. I think we, with government people who are sympathetic to the subject, need to find out where in the government are the leverage points, and I believe the leverage points are really at a level below the people I was talking about. Maybe above some of us here in this room, because there is a jam-up there someplace. I can understand the sensitivity of the information, but I think we've got a group of people in this room that can come up with the answers on exactly what is the problem, where's the leverage point in the problem, and how should we attack it.

In conclusion, there are no simple solutions. There are only intelligent choices. Thanks again for the opportunity to talk to this very knowledgeable group.

Mr. White

I'd like to make one point. I am both a gatherer of information and a user. I have dual responsibilities in my position. I not only have to get the information, I have to help management use it. In my organization we have a very formal decision-making process that we go through. It takes information. I think we're at a critical time right now that we really need to try and make sure that we are getting the best information possible. DoD and Congress would like more competition, they would like more investment by companies, but at the same time we have acquisition cycles that it takes 10 to 12 years for a system to get from R&D into production. There's a lot of research and development involved. You have to make commitments early, sometimes even before the need is approved. And if you don't provide the information necessary, we're just making it more of a gamble. We're raising the stakes and I think both DoD and industry can look bad. I think the key to this thing is really to find a way to sell our story to DoD that it is to their benefit as well as ours that we have access to the information we feel we need to make intelligent choices.

With that, I think we'll open it up for 15 minutes or so of questions.

Question

Colonel Ramsden, most of the information we've been talking about deals with the R&D programs for the future. In many cases, very important things are done outside the STIP program using procurement of OMA money -- major . . . to programs that are opposite, sometimes, to major R&D programs. What is the best way that we can get good information from those?

Colonel Ramsden

In the procurement appropriation, there is a similar set of budget justification materials presented to the Congress which should be available to the TILOs on the major procurement programs, that is, in the Army weapon track and combat vehicles, missiles, and the aircraft appropriations. We also prepare what we call "P" forms which are submitted to certain selected staffers in the Congress, which display much more detailed information which certain Congressional staffers have required the Services to provide. My recommendation would be to start off by looking at the justification material, which I believe are called Procurement Congressional Descriptive Summaries, as a start point. Then I'm not familiar with exactly how much other detail might be available to the TILO. Now, the O&MA appropriation also prepares budget justification material. I'm not sure that would be particularly useful to you because it tends to be rather broad and generic and not in the level of detail which I would think would be useful to you and which you're used to seeing. . . . . . classification that is confidential of the RDT&E Congressional Descriptive Summaries, and I see no reason why they should not be available.

Question

For Mr. Montgomery, over the last three or four years, the Navy's Subproject Program Plans . . . have taken a philosophical 180° turn in regard to whether or not they're available. Would you tell us just exactly what you intend to do with the 87 Subproject Program Plans?

Mr. Montgomery

As far as I know, they'll be made available. For those of you who don't know, the Subproject Plan is a fairly concise description of what is in our technology base by program element and by subprojects. They are released to the NARDIC offices in a sanitized version, because in the raw version they have information such as what contractors are potentially going to work on a program, etc. That information is sanitized and then made available to industry on a need-to-know basis. They are not available, necessarily, as a group to you, depending on what needs you have and what your security clearances are. Ron, do you know if there is any change in that policy for 1987? (Reply cannot be heard) That's right. I was involved in the release of these for most of those years. I know one time in the last five years we had a two-month delay in releasing them from the time they were fully available. I think there has been a misperception in the case of the SPPs in that they are released as a unit when they are all available, and I had many questions when I was in the IR&D office where Ron is now from companies to say they understood that SPP so-and-so is written, and when could they get it. The time line between the first and the last may be as much as six or seven months. Once they're available, the release is usually a matter of a couple of weeks. Every discussion we've had within the Office of Naval

Technology about passing that information to industry has been not
"do we do it or do we not do it," but "how do we best do it." So
I think the misperception comes from the fact that they are,
through a process of iteration, changing and not in the final form,
yet the ones you may be aware of could be. So there could be a
significant delay from the time you hear that one you are interested
in is done and when it actually reaches the NARDIC office.

Question -- cannot be heard

Panel Member

    Another brave industry guy over here that knows how to get a
question answered! I guess the question is from a former industry
individual who is now in the government -- when he was in industry
he had trouble getting information from industry that industry is
now asking for from government. In industry, I don't know what his
experience was. There are certain things we have to tell our sup-
pliers, certain specifications we have to give them and what have
you. I don't honestly know of anything we hold back from our sup-
pliers that they can't have. The government/industry relationship
to me is an entirely different thing. Lord, I'm a private citizen,
I'm paying taxes, I'm paying this bill down here. I'm also support-
ing it as a contractor. Given the proper clearances, given the
proper need to know, the proper reason for having to have it, you've
got to give it up.

Panel Member

    My attitude is DoD is a customer here, and we're trying to
find out what the customer is doing, and it's a way of doing market
research in my opinion. If the data weren't available -- and in
some cases it isn't. In DoD you have this elaborate PBBS system,
and if you were trying to work Social Security or something like
that you'd find that there's a lot less documented information avail-
able to you, and you'd have to change your tack in trying to find
out what's going on. But here we have sources of information. My
feeling is it's in the public domain type of thing, given the need
to know, and we should utilize that kind of data. Anybody from the
Services want to comment on that?

Panel Member

    I worked with Detroit for a long time. Detroit can't make a
car without having a tire on it, and that tire dimension, that
tire's characteristics and everything else are critical to that
suspension designer's work. Boy, they had open access to anything
that we had coming along down the pike on tires. We gambled and
we gave them stuff that we thought we'd be doing five years out.
I think it's more open than some experience you had out of your
history.

Question -- cannot be heard

Panel Member

The obligation plans come in to us at two points in time. One
of them is in September, what we call the Initial Obligation Plan,
which recognizes it's a little bit rough because the Congress is
still acting on the appropriation. Then we get a cleaned up set of
that normally within 45 days of the passage of the final Appropri-
ation Act. To my knowledge, that obligation plan is probably not
made available because what it consists of when it comes to us is
essentially a forecast at program level by quarter as to how they
intend to obligate the dollar. There is not a breakout of how much
they plan to put out in contract versus how much they want to use
in-house. So I don't think that kind of information would be partic-
ularly useful to you. I would think that if you worked with the
individual commands and laboratories, if you had an interest in a
particular project, some of that information would be available
through that source, but it's not published as an official document.

Mr. White

Again, I want to express my appreciation to all members of the
panel here for their discussion this morning.

WORKING GROUP SESSION A

ELIMINATING BARRIERS TO COMMUNICATION
OF DEFENSE R&D PLANNING INFORMATION

Ms. Lucille McClure

Welcome to the workshop. I'm hoping that this will not be a
speech, a question and answer session, but an actual participation
from the group. We really need your opinions on some of these bar-
riers that our group has perceived exist. We want your participa-
tion in whether they do exist, and some of the recommendations for
solving or breaking down these barriers.

Let me introduce to you the people that will be working with
us this next couple of hours. I'm Lucille McClure. I'm with Martin
Marietta in Orlando, Florida. We have Walt Blados here. Most of
you know Mr. Blados. He's the Scientific and Technical Information
Officer at the Air Force Systems Command. Marty Pearl is here, and
he is head of the Domestic Technology Transfer Program, Office of
the Chief of Naval Research. And we have George Pollock, Naval
Ocean Systems Center Officer out of San Diego. Some of your pro-
grams have Mr. Pearl's name, and some have Mr. Pollock. That's
because Mr. Pearl got sick on us a couple of weeks ago and we sub-
stituted Mr. Pollock, and they were both so interested they both
showed up. So you've got the Navy represented in this group, if
no other place.

Mr. Pollock

The answer really is that Lucille was determined to get a senior
citizen on the panel. Actually, I retired from the Naval Ocean
Systems Center in 1984. At the time I retired, one of my responsi-
bilities was operating two of the NARDIC offices that the Naval Ocean
Systems Center is responsible for, and I have been working for NOSC
again, which accounts for my being here. But I'm sort of an
emeritus.

Ms. McClure

Well, we accept you in any case as part of the Navy. Another
person on our staff here today is Marie . . . . She's our scribe
or our recorder, and she is in the Office of Marketing Research
for Goodyear. Also, we have Helen Viel from DTIC, and she will
be operating our vu-graph machine. If you don't see what you think
you ought to, just stand up and say so. We want this to be a very
informal group where your ideas can come across to us.

I want to start off by giving you what I feel or what our group
feels are the goals of RADPIMS -- the Research and Development
Management Information Section of ADPA. There are four objectives
which RADPIMS perceives on behalf of its members -- you are our
members.

- To break down any barriers to communication of Defense R&D Planning Information. That's what this session is about.

- To promote availability and utilization of Defense R&D planning information. That's what the other workshop is about.

- To foster teamwork between government and industry, which seems to be a big problem right now.

- To provide a forum for members to hold open discussions on common R&D planning information problems. And that's what this symposium is all about.

If you have something to project in this particular field, we're interested in it.

The ten most common barriers to communication of Defense R&D planning information, as perceived by the RADPIM members are shown on this vu-graph. We had about 40 preliminary members before this meeting was kicked off. I called each of those that I could get hold of and asked them what they perceived as being the most common communication barrier that they had experienced within their companies and the military. After much discussion, we came up with the ten common barriers. This is on page 2 of your handout. I'd like to go over each of these common barriers, and I'd like your opinion on whether you think this is a perceived common barrier, if we're just sort of talking to the choir here, or if something can really be done about it. We'd like your recommendations.

Issue 1. Adversarial relationships emerging. We're feeling this. I don't know if it's written down anywhere, but I feel it when I talk to the military and I know that it's a backlash, such things that I feel and our group felt were bringing on this situation. Things like the spare parts issues, charges of fraud and abuse, spy cases, a technology transfer backlash. All of these just sort of collected together and when you ask for information you have real heartburn on whether they're going to throw you out of the office or not. It could be something that's published in yesterday's paper. How do the rest of you feel?

Comment

I'm . . . Hendrickson from Aerojet. I was . . . a little bit by the speakers yesterday and today when they said, "obviously we can't give you our planning information," or "obviously we can't tell you which companies have expressed interest in this." I can't understand why it's so obvious. For example, I think the government gains when there's more competition, and I think the government gains when we know who the competition is and we know that we might have a unique approach if we could get in there in the game. There's a basic assumption that goes back many years that we'll take advantage of anything we get from the government, and that's reflected in all the bullets, like we have taken advantage of the government in those cases. It's to our advantage not to take

advantage of the government; it's to our advantage to serve the government, and that's really the main thrust of our desire for more information. But there's a longstanding attitude on the part of all the government folks about us taking advantage of the situation, and that makes for an adversarial relationship. If we don't know, we try to find out.

Ms. McClure

Do you agree with him? Do you have another view on this? You all agree. All right.

Panel Member

Lucille, may I comment on that? There's an old saying that all generalizations are wrong, including this one. That is just the comment that I would like to make. I would not disagree with you that you can find that kind of an attitude. But I would caution you against saying that is _the_ attitude, pure and simple. It is not as monolithic an organization as it seems, and there are people with different philosophies and different attitudes, different levels of knowledge about what industry can do and what industry does with the information. I realize that that makes it difficult to work with, but I just wanted to put that perspective up.

Comment

Sir, I speak with a little experience in the field. There are many program managers that recognize that it helps us if they tell us what's going on in the program. And they do. Sometimes, to be really blunt about it, it's illegal, but they tell us anyhow, or make the paper available to us. But that's not a widespread operation. That's the guy that's got a specific problem, he realizes he can get help for the problem with the information disseminated. Broad case, there's a reluctance to tell us.

Comment

I'm Rick . . . from Goodyear. One of the examples of the adversarial situation might be described in the case of the TILOs, NARDICs, and . . . These are set up to be of great assistance to us and make the most information available, but sometimes when we need information, there appears to be a resistance between them and the people who are supposed to be serving their information needs back to us. That's one of the examples of the adversarial situation. Very much so.

Panel Member

I think we have to make everyone aware in the field that these offices serve a vital function, and I think that's what General Lamberson said, that he has a number of initiatives that he wants to pursue, and that he wants to make the field aware that these

offices are there and what their function is. It's not going to
happen overnight, but I think you'll see an improvement over the
next couple of years because I think he has made the commitment,
and is sincere in his commitment to share this information with in-
dustry. I think we'll see that happen. But it's something that
we're working on at this particular point.

Comment

I wasn't here yesterday, but there was one speaker this morning
I think he said by presidential direction that there will be a
limitation. Sometimes that translates over into industry not so
much stopping a . . . ., and here again, that could be a problem
. . .

Comment

I'm Harry Jordan with LTD Aerospace. A side issue of this number
one, and it's not on your list, would be a difference in attitude
concerning the release of data to industry from among the three Ser-
vices. There's a wide variation of attitude. My own personal ex-
perience puts the Air Force number one as far as making available
quality data, helpful, more detailed, and Army number two and the
Navy number three.

Mr. Pearl

I'd like to say something on that. As Lucille says, that's why
we have two Navy guys here! But you don't have the Navy guys who
have been resisting giving you the information. What you have is
the Navy community that's in business to make the information avail-
able. As the other gentleman said, very often that adversarial re-
lationship isn't from external to internal; sometimes it's internal
in the Services. One of the things my office has responsibility for
is the policy and the overall management of the NARDIC offices that
you referred to. It's clear, and clear in our charter for those
offices, that we're supposed to be sharing information. We need
help in convincing the rest of the Navy that we as an organization,
our operation, is capable of doing that within the ground rules they
feel are necessary, and that we are a good central place to do that.
It's an economical thing to do, a fair thing to do, and won't create
additional problems for them. That's why the people like Mr. Blados,
who is in a parallel situation in the Air Force, and the
Army people who are busy in the other session next door -- that's
why we encourage this sort of meeting because the kind of weight
that a couple of hundred interested industry people have is a lot
more valuable to us than the kind of pressure we can exert intern-
ally in our Services. We hope to use the results of this session
and the session next door, and take that and bring these kinds of
issues to the attention of the people that are causing the problem.
They're not doing it just to be nasty; they're doing it because
their perception is that that's the way to protect the information
they have, and in fact, very often the perception is that they can

get a better product by behaving the way they've historically be-
haved. I know you people don't agree with that, in general, and you
think there can be a lot of improvement. What we have to do is in
a logical, structured way show how we can make those improvements
and not lose the kind of protection you people want, and not weaken
their position when they come to deal with you across the negotiating
table.

Comment

The gentleman in the back said that a lot of program managers
make information available and "maybe it's even illegal." I think,
to take the devil's advocate side of this situation, there are so
many people from industry that will challenge any contract that is
granted on the legality of it, that somebody got preferential treat-
ment . . ., and it automatically scares off the government manager
and he becomes more and more restrictive. Perhaps it's not being
adversarial, but self-protective. He'd rather not even take the
. . . of appearing to have provided information unfairly. So the
challenge in part, it would seem to me, is that information has to
be made available in a very open manner so that nobody can challenge
. . .

Ms. McClure

That's what we're hoping. That's one of the results we hope to
get from our conference that more information will be processed
through Tri-Service and through DTIC, and each person on a contract
need-to-know will have the same information available.

Comment

. . . We're relatively new and we're emphasizing trying to get
back in government business, so we don't have the experience of
working with the government agencies and digging out the information
that maybe some of the other contractors who have been around a
while have. But we found something over the last couple of years
that's been extremely disheartening to us, and the first one is
that if you're not a big prime contractor, you have even less infor-
mation available to you on subsystems than the big contractors like
Boeing or McDonnell Douglas or whoever has. So we have difficul-
ties digging up that information and when we go to see people who
are in ground support equipment or in support systems for these
prime contractors, we find the second problem, and that is they
relatively know from a couple of years before when they started the
process of getting information roughly what they thought it should
cost -- and I'm talking only from a cost standpoint now -- and maybe
the people that talked to them at the time had inputs to what that
was going to be. But now when the spec is being put out and the
. . . . ., there's immediately a cut-off and no more talking to con-
tractors. To the new guy on the block, there's no way you can
legally go in and talk to somebody and try to get that information.
We have challenged the contracting officers and they've been open.

They have told us, "Okay, we think everybody knows pretty much what's
here; here's what we can tell you about it." And that's been by
letting us in and letting a whole bunch of other people in and tell-
ing us all the same thing. But the problem is it's an adversarial
relationship. We deal in the commercial industry, and we wouldn't
even think of supplying the customer if we didn't know what he
wanted and what he expected to spend. It would be stupid to even
pursue the thing. Here we have the government hiding everything
because they think somehow you're going to get an unfair advantage.
I find the dichotomy between commercial and government even more of
a gap than I had suspected.

Mr. Pearl

Lucille, I would like to make one more comment. It is to add
another dimension, if you will, to some of the things that have been
said. There's been discussion of the fact that the Tri-Service
offices are the "right" place to come, the place where the Services
can make information available to industry. I just want to under-
score -- and I will speak from personal knowledge about the Navy
and the NARDIC offices, but I expect the same thing applies to the
other two Services -- that this is not really only a reactive situa-
tion. It is not that these offices are there, and open the morning
mail and if it happens to contain another document that someone has
decided can be made available to industry, well fine. Then it's
made available. It's a much more proactive situation than that.
Our people actively work to try and get industry all of the infor-
mation that can be made available. For our NARDIC managers, that is
part of their responsibility to go out, to talk to people, to talk
about the needs of industry and the way that can benefit government,
and to get documents that are useful to industry into the NARDICs.
I think the NARDICs have historically been quite successful in that.
I see two of our NARDIC managers in the audience here, and for those
of you that don't know them, this is Pat Eubanks sitting in the
corner here. Pat has been very actively engaged in this effort for
a number of years. Louise . . . is just coming onboard. She will
replace, as of Monday, Lillian Morris, whom many of you know.
Lillian is retiring. But we don't just wait for information to
come to us. We are very conscious of your needs, and we try to
get more information to be made available.

Comment

I was just looking at the direction of the discussion. Take
a look at the issue under discussion -- adversarial relationships.
I'm not sure that we really have pinned down all of the potential
causes of adversarial relationships. It's been thrown back and
forth -- we think you're saying this, and here's how we think you
think. Dick Douglas brought up one new point, the problems with
procurement rules and regulations that need to be followed. Another
one I'd like to hear more about is that I perceive that as we get
closer to actually procuring a product, the information flows a
lot better because at that point we both have a common objective

-- to get a product into use. But as we go further in the planning process, I perceive that there is real hesitancy to share especially procurement planning information because there is a difference of objectives there -- there may be a difference, at least. I perceive that government planners perceive that industry planners' objectives are not necessarily those - - they fear lobbying. If I want to build an aerodefense system a certain way, but your company has a different product, we have competing pressures. I'd like to hear a little from the industry side.

Comment

I've had the opportunity in the last year to work with some . . . and even at the star level, who have left government and then gone over to the industry side. I think one of the things that comes out is the old communication/education. I don't think that everyone in the Pentagon, and certainly at the program management level, really understands what a company has to deal with as far as all the way up from the stockholders down to profit and profit reinvestment, and the whole IR&D process. I think there is a lack of communication on the part of DoD as to what industry has to deal with.

Ms. McClure

We're going to cover that in our next issue.

Comment

And I think that is what is contributing to the adversarial relationship. The Pentagon deals with a budget and it's very easy to say we have this, this, and we want to do this. The general managers of our companies know it's not that simple. They have stockholders to answer to when they go out and spend their money. And I think to exacerbate that is the fact that for whatever reason, the Pentagon -- and this . . . to people who have worked and even the POM cycle was that there's a lot of information that is being arbitrarily classified when it really is not. Therefore, I think there should be a real look at what is classified information, what really is in the interest of national security. I'm not talking about technical things; I'm talking budget numbers.

Comment

. . . from Singer Corp. One aspect of the adversarial relationship has not been brought up yet and that is what can we do to clean up our act so that they don't become an adversary. For example, Marketing may work like hell to get a contract, and then they turn it over to Engineering and Production and they say, fine, we know what they want, what we've contracted for, but this is what I'm going to build them. Nothing will irritate a government program manager faster than that.

Comment

So far, Lucille, we've all talked about the latter stages, I think, of the business. That is, when there's a program identified and a lot of paper involved and that sort of thing. There's a ten-year process that precedes that. We spent IR&D and the government labs dole out small portions of money for contract R&D, and the IR&D that we spend is really government money because it's paid for by the programs. It's . . . overhead billing and it's part of our program. So a gain in efficiency of that early stage -- and it's a long stage. It goes on quite a long time before a program is identified, there's a requirement written, and it's a line item in the budget. If we knew what the government needed, what the user wanted, and what the laboratory was trying to achieve, we could spend the money better and they could spend their money better.

Ms. McClure

I see a lot of people shaking their heads. So what we get from this is yes, there is a relationship of this sort, and maybe the fault is not all government, as most of us industry people would like to think, and vice versa. One of the things we want to do and one of the reasons we're spending so much time on this Issue #1 is because all of the others are sort of the results of this Issue #1. What we want to do is talk about it more, bring it out into more conferences so that this feeling will go away. I don't know how else to make it go away. We're not going to completely redo the government, and the government is not going to come in and redo industry, so we have to talk about it and at least soften the feelings a little bit so it doesn't get to be a shouting match every time we are in the same room together. Any other comments on this before we move to the second one?

Comment

I think there's a lack of leadership on the part of OSD concerning policy . . . to industry. I think in Colonel Carter's area and Dr. Young's area -- well, they do release the statements, the Dr. Hicks and so forth, which have useful planning information in those statements. However, I think maybe we can take a step beyond that point and perhaps suggest the levels of detail of information to be released to industry and types of information on the part of the three Services.

Ms. McClure

Can we move now to Issue #2? Issue #2 -- lack of government's understanding of corporate planning needs. Now, my corporate planning requirements, I have to do the first cut of the market forecast for our company and what I usually need are things like the technology requirements, the approved requirements document, front end program managed. Don't fall off your chairs, but I need a minimum of a five-year funding profile. I need a customer . . .

of upcoming programs. The concern of this successful corporate strategic plan which I work on depends on the sources of recurring information, what I tell my boss is really out there, and also the deficiencies in the flow of information. Now, that's where we're coming from from industry. Do any of the rest of you have that same sort of problem? One of the recommendations -- and do feel free to come up with recommendations during this session -- I feel that the RD-5s which are available to industry now would hurt the government less to release that to the Tri-Service Information Centers unsanitized. That would give me the planning documentation that I need to do my job back at the company. They say they can't release it because it has not been given to Congress. Well, give it to Congress. I'm not objecting to that. I know when I'm going to get the POMs. I just feel that. I know when I'm going to get the five-year defense plan. I know that. But I am getting part of the RD-5s and I think it would hurt the government less if they go ahead and give me all of it.

Panel Member

Lucille, are you talking about the dollar figures that you're not getting?

Ms. McClure

Out-year funding. In other words, not sanitize that document. Right now they sanitize it, it comes out in September, the Air Force does have it. The Army is going to get it next week. The Navy, never. Does anyone else ever need this kind of data? Yes, you're all saying yes. Tell us.

Comment

I'm Ted Temple from Planning Research Corporation. I think there's one big misperception on the part of the government often-times, and that is we have a very structured approach that we go through in analyzing and presenting these programs to our manage-ment for investment of not only IR&D funds but through the bidding process. In order to do that we have to demonstrate to them that we have talked to and understand the client requirements; that we've talked to the procurement people, we understand where they're going; that we understand the technical issues. In order to do that you have to have contracting people in the acquisition side that are willing to talk and discuss and identify technical points of con-cern. Over the last two years, I would say, the willingness to en-gage in that kind of information exchange has just clamped shut. I've had people tell me that when the CBD item comes out, every-body has the same input. Well, if that's the way it's going to be working, we're not going to be bidding any of those things.

Ms. McClure

We had a government person tell us this morning that if we wait that long, we're too late.

Comment

.. . . Would you in industry be willing to get together and free the government of any legal claims based on government-supplied information in any courts . .

Ms. McClure

As a marketing researcher, I say absolutely yes. Now, my legal people might not agree with me, and I don't know how to answer on that. Someone else may have an answer.

Comment

I really see that as kind of fundamental. The government makes more and more information available, and it becomes . . . in a court of law, they will close down.

Comment

Lucille, I've played on both sides of this and I'd like to suggest that there is more belief in industry that the planning documents that the government has are really their plan, and in fact, in many cases it's sort of a marketing plan in that they're asking for that much money but they don't really believe they're going to get that much money in all those projects. It's a matter of saying this is what our wants are, and it would really be misleading if industry was lead to believe that those dollar values are going to be available to them.   In fact, every program manager and every viable advocate in the Pentagon would like to tell you that that's what he's pressing for on his program. But if he gave you that paper and said, "that's what my funding is going to be," and you went away and did planning based on that, you would not only be misled but he would perhaps, as this gentleman has suggested, the government is, in fact, liable to you for some reason. That's true, you would be very naive if you believed it, but people who enter this business without having played in both sides of it would, in fact, believe that that's it.

Comment

I think most of us do have the understanding that those things are written in disappearing ink. They're susceptible to R&D planning panels, and things get switched around, but at least it gives us a trend. It gives us a look at the mission areas that they have requirements for and those that so far they're willing to put their . . . down on their list of priorities. It doesn't mean it's going to last. It doesn't even last when it goes to the Hill. We know that. But at least it gives management a warm feeling about hey, the Army really is serious about a new air-to-ground missile. I think we would be remiss to use those numbers as fact, but I don't think any of us really do in our planning.

Panel Member

Linda, I would suggest that you, having been involved with it as long as you have, would not use it as fact, but a new person coming into this business, either in industry or government, seeing those figures really believes that that's going to be what the funding is going to be, and they'll sell it that way.

Ms. McClure

He wouldn't last long in many companies. He'd be replaced soon. Do I have some other comments on this?

Panel Member

Before you go on to #3, on #2 I think, and correct me if I'm wrong, this really gets back to the purpose of RADPIM and the purpose of this conference because if we're talking about lack of government understanding of corporate planning needs, one of the important things is to focus the kind of discussion that's going on here, and augment it and present it in such a way that more of this perspective is made available at more levels of government. Now, there have been previous conferences to do this. There have been presentations that have been designed to do this, and it is not an easy thing. It is certainly not a one-shot deal. But I submit that there is an action item for this group, for RADPIM, and for ADPA to try and make progress on Item #2.

Ms. McClure

Yes, that is one of our issues that we want to put in the proceedings.

Comment

I would just follow up what George said with a comment that we in industry oftentimes either will go in shotgunning or it's not clear just who we're talking to, whether we're looking for specific information about a specific program which may be at a specific point in the cycle, or whether we're looking for general planning information in the out-years to use as kind of a yard stick or ruler to see where we're going. And . . . I've been on both sides of the fence, be pretty cautious and start answering some specific questions about specific numbers, and it's sometimes difficult to tell where the specific . . . planning and general information comes across.

Ms. McClure

Right. Let's move to Issue #3, the other side of the coin. Lack of industry's understanding of government source of data. One of the problems we have is the new kid on the street comes in and he just kind of feels out everybody to see who has what where, and

we find that new members are not always trained or they don't always know where to go get the information. One of the suggestions or recommendations for this was to publish a DoD directory of information centers. That sounds like such a simple thing. Everybody ought to know it. But they're not all together. In other words, a NARDIC has theirs, Air Force has theirs. To put them all together in one little book and put them out as a product of this group. That way you'd have a phone number, it would be kept current, you wouldn't have to wait for the government to release money to publish it. The person doing it would get RADPIM to do it or their company or somebody. Rod Alderton from GE accepted the assignment to do that.

There are two other recommendations and what I'd like for you to do is give me yours and see if you agree with these or not. General Babers said he would like to bring more of the VPs and brief them on some of the problems of information. I've heard a couple of stories -- two pro and two negative --on this, and to identify the Vice President with a new company and brief him on this might create a problem and might not. I'd like some feedback on that.

Also, the last one is to identify DoD laboratories. There is a list of the DoD laboratories, the 163 or 170 or whatever there are, but we're talking about smaller laboratories in smaller commands that might not be on anybody's list. That's another project.

Do any of you have a project that you think might, other than a form of this sort, inform the new people on the block where to get the information and who to call in case they need information?

Comment

My name is Mike Morris and I'm with Litton. One of the speakers yesterday listed a whole series of planning documents, what he called planning documents for future products. Obviously, not everybody would need everything, but it did occur to me that although I've had very good success in dealing with the Air Force Information for Industry office, I never really saw that list before. I never really saw what could be released, let alone whether it should be released, but what could be released right now and what classification level it might have.

Panel Member

Have you ever seen this? That's the list that he had on the board yesterday.

Ms. McClure

Also, his office -- all their offices -- put out a memo to the people that continually come in to see them that lists the new things, like it would say the last month or two what they had received, which is a help. Anything you can get your hands on helps.

Panel Member

Get on the mailing list. There is a newsletter that goes out quarterly. A new one just came out.

Comment

Troy . . ., ESMC. I wrote in the May-June issue of the Program Manager magazine an article that was published about developing a database structure for non-major procurements. The idea was to have spare parts and small procurements advertised well in advance, long before the CBD. The Marine Corps picked up on this and said we think this is a good idea and we're willing to prototype it for the whole of DoD. The Marine Corps Logistic Base, Albany, is presently doing that. If this works out, it's a potential for having a dial-up modem-type database that you can get information for long-term small procurements. Hopefully, this will open up another avenue of information.

Comment

Lucille, I think it might be handy if someone in the government, and I don't quite know who, maybe a sort of Dr. Young, would publish a little memorandum saying what we should have and what we should not. I've actually had inter-industry discussions or arguments about whether this document is really proper for us to have. I'm not sure, but here's a copy, Dave. So there are a lot of people that know and a lot of people that don't know, and there's a lot of grey area about documents that we're allowed to have and not allowed to have. There's great interface and there's a lot of stuff flowing back and forth, particularly in light of the current communications atmosphere where they accuse us of nefarious schemes and take us to court, it would help us if we knew what was available and properly available.

Ms. McClure

Maybe when Rod does his DoD directory he could also include something like that, a sort of little handout to industry to know what they're supposed to have.

Comment

Actually, I talked to you a little bit yesterday about developing a guide to the plan of attack to the RFP planning information. I think it would be useful to identify what it is, what it does, and then put those statements in there about its availability and its usefulness, and who gets it, who doesn't, and why. That information would explain in one place, would help solve the problem of industry's lack of understanding . . . Have . . . put that out, or somebody in USDRE put it out.

Ms. McClure

That's a good recommendation. Would you like to investigate
that for us and see if it's being done now, and if it isn't,
sort of head that little group up?

Comment

I don't know that it's being done now. The closest thing I've
seen to it that I use is a booklet called, "How To Get It." Also,
I'm not sure how many companies here have information centers near
their companies. I, myself, have worked in the library at EDM Corpo-
ration, and the first thing that I did when I arrived there was
order all the PEDs. They weren't there. Well, there were scattered
ones, but we ordered a set. My name is Jim Milicheck from EDM Cor-
poration. It was just one step, and since I've arrived -- I'm a
new kid on the block in industry -- that is one thing that I did,
but I learned a great deal and I'm surprised at how much is unknown
by industry about government sources of information.

Comment

I think that's an excellent suggestion because I see one of
the things that industry has been remiss in in some instances is
sending a newcomer to this world into the TILO office and expecting
them to educate them. And they have the list, but not in the list
is to tell me what to do with it and what does it say. Those offices
don't have time to train us. So we need to do it within our compa-
nies and that guide would certainly help.

Panel Member

I'll second that. I think that's a very appropriate comment.

Comment

. . . of the sources of information are to come in and ask for
the FARs. We have the FARs, we send for the contracts to get them.
But we also have to include federal regulations, so how to use
all this information, how it all interrelates would be very useful.

Comment

I'm John McIntyre from . . . and I'm not a new kid on the block,
I've been doing the same thing over and over again for seven or
eight years, but he's right on target and I think everybody would
agree that what we need is a DoD directive that sets up an R&D in-
formation sharing program that says "this is by policy our atti-
tudes. We're not adversaries. This is by policy how we're going
to handle this. These are the things you can get, these are the
things you can't get. This is what's supposed to be in the TILO,
this is how big the Xerox machine can be." Put it down so that we
on the outside-of-the-Pentagon side and the guys on the inside of

the Pentagon all know what the rules are because that's what we're talking about. There are a lot of fuzzy rules.

Comment

Another thing that might be included in there is the . . . problems about the budget cycle itself, the times of the year and the different things that are available -- maybe the "when."

Comment

Those are the documents.

Ms. McClure

Those are the documents. We do that in my place. I make up a little booklet for my other marketing people.

Comment

I just want to say that years ago, before there was an identifiable adversary situation, there was a marvelous little gentleman at Army named Dr. Trudeau. He used to do what you mentioned in your first comment about briefing to the large corporations. At some expense, he would take his key R&D leaders from the various disciplines and go to a company at one of his major suppliers and brief that corporation so that there was very little doubt about where the Army was going. Of course, the argument today to that sort of thing is that it costs money. I wonder if the money could not be saved by having this kind of relationship between the key vice presidents or whatever of corporations, if not a visit there, then a calling of these people to Washington and do something that would solve this category.

Ms. McClure

. . . is being done it's at a very high level.

Comment

Well, the difference was . . . of the company have its key people.

Comment

A comment about briefing the vice presidents -- that might be all right, but I think vice president is too high a level. I think in most companies, like yours, vice presidents would listen and then have to get on with answering to higher levels. I think director is a better level to deal with.

Ms. McClure

That was the point I was trying to make. Thank you.

Issue #4 -- I'm sure this one is all new to you. Information released is sparse and old. For instance, ROCs being put into the Army. It's not Delores' fault! None of this is meant for the gate-keepers or the people who have to fool with us every day and answer our questions. These are the systems that we're discussing here of why aren't they running through the system like they're supposed to, and that reports to DTIC are old. If you tried to use the PEDS out of DTIC, the one that came on-line the first of November, you'd find that you can't do it very well. So the issue came up that in-formation does get into the Centers old. For instance, if you get a new Army plan or a master plan, the one you get from DTIC is dated last year, but the one that just hit the street is dated January 85. That sort of situation exists. Have any of you had experience with that that you'd like to share?

Comment

My theme of earlier, . . . is pretty late in the game. My com-pany has a series of contracts at least six years old, and the rocket is just going through the draft process now. So there are earlier documents like letters of agreement and things like that that start programs in the early stages, but the kind of . . . . . ., no new company could ever play the game. It's too bloody late. But there are also, periodically, planning briefings of the laboratories' objectives, and laboratory technical objective guides and that sort of thing that sure could help us a lot if they were early and uni-versally done by all laboratories. They could help us a lot in understanding the laboratories' objectives and how to focus our technical research effort. And I'm talking about five or ten years before there's a rocket.

Ms. McClure

Any other comments on that? Let's move on to the next issue. Val-uable information is continually withdrawn from the center, and the items given to me were things like project lists, priority lists, long-range plans, and, of course, the MARDIS, which we just went through, was just withdrawn and I was using that great. The 1634s, which went away a few years ago and have never been replaced, and of course, the one that we're getting now which we appreciate but it takes a long time to get there is the RD-5. Do you have any com-ments on that or any experience where you went over for something and you could get it, it was old, or it was withdrawn? That's strange, because I had three people, when I did my survey by tele-phone, tell me that this was an issue but it doesn't seem to be an issue here. Great. Let's move on.

Panel Member

Let me say one thing which perhaps is obvious to everyone here, but I'll just verbalize it. That is that most of the information that we're talking about here is information that is generated by the Services or the Department of Defense for its own internal need, and the 1634s are a case in point. The 1634s formed a very valuable database, as I understood it, for industry. But in a review that was made of their viability, their necessity for their original intended purpose inside the Department of Defense -- that came out to a negative conclusion. So that, I think, drives some of the fact that information is available one year or two years or perhaps a longer period of time, it is counted on as part of the corporate planning process and until the source document goes away. I recognize that that represents a real problem, but I just wanted to put that perspective in that it is not entirely and perhaps not for the most part a matter of deciding industry access or non-access, although that would apply to some documents. Sometimes it is simply that the internal structure changes, and this is an out-fall of it.

Comment

I'm with DTIC, so I'll comment. I think a valuable recommendation you could make along this area would be to industry to express your definition to OSD as to what scientific and technical information should be. A definition of it. I think you'll find that there's not common agreement that long-range plans, for example, about R&D are scientific and technical information.

Ms. McClure

Right. And we here are mostly interested in planning information as opposed to the scientific and technical information.

Comment

I think it would help a great deal to force the . . . of a definition to include all plans related to the outlook of detailed studies are, in fact, scientific and technical information.

Comment

I'm John Glynn from DTIC, too. I'm kind of taken aback by the nonresponse of private industry of accepting this whole data. We only can make available what data comes in to us. If the data is a year or two years old, and we cannot get it from the Military Services, that's not our fault. But my question is what recommendation -- and I add on to what Dick said -- not only what you need, but what action can you take or what action would be best taken by you. In this case, I think here is where your vice presidents can put some emphasis or pressure on the Military Services to get the information to the resources so this information can be made available to you. That's one of your biggest problems I see, making the information -- Fred Lewis has said this time and time again --

complete information and timely information. Those are the most
critical things. If you don't get that information -- you said the
1634s were outdated. We were still getting searches on the 1634
file as late as September of last year when that file went off-line
at DTIC and the RD-5 replaced it. We were still getting requests
for information even though that information was more than four years
old. It's ridiculous to me to have an organization like yours, or
this group here, accepting what you're just putting up there and
silence coming from this group. I don't understand it.

Ms. McClure

Another thing, too, when we take it to our vice presidents and
we say, "this document is old," what he does is get on the phone
and calls his friend who sends him the current one and our problem
is solved. That's why we're bringing it up in this discussion.

Mr. Glynn

But that's not helping the other fellow.

Ms. McClure

Absolutely. It's not even helping me.

Mr. Glynn

That's why you need a DoD directive.

Comment

A new DoD directive is not for us to try to push from within
because we can only do so much and that's all we can do. What's
imperative is that you, industry, put pressure on those people --
Frank and the other people above him -- to get that issue changed
so that this thing can be corrected. Otherwise, the Military Ser-
vices are going to sit there and give us the same old data two and
three years old.

Ms. McClure

I agree. I think I ought to applaud on that one because that's
exactly what I wanted to say.

Comment

Another peripheral statement on the subject would be the fact
when some of these master plans are withdrawn or whatever, there's
a complete inconsistency among the various departments concerning
this type of information. In other words, you come up with an avi-
onic master plan, you come up with some other master plan, but all
the other SYSCOMs don't put out any master plan. I know Lil has to
beat on people and talk to all sorts of people -- OP-95 is a good

example -- to try to get information out of those people. I mean
an update of this particular master plan, which was there a year
ago, is no longer available there. I don't know how we help the
people because they haven't got time to do that. Lil doesn't have
time to get this information for us.

Comment

You said the magic word -- avionic master plan. I'd like to
know how come the Army and the Air Force avionics base plan are
not classified and the Navy's is.

Panel Member

I'll tell you that the Navy's plan is properly classified and
I won't talk to whether theirs are properly unclassified or not.

Ms. McClure

Now everyone wants to go out and get the Navy's -- what's in
it!

Comment

I'm Kurt Molholm from DTIC. Number one, nobody is really
talking about what the reason could be for all this. We're talk-
ing about systemic problems, but we're really not talking what the
objective is, and I think it's important that everybody understand
that there is a mutual objective, and the fact that industry and
Defense are working towards that common objective, and if we work
against one another we're not reaching that objective. But more
important, there is no such thing as a monolithic government. There
are all kinds of forces within it. I don't think anyone in industry
has to . . . of 535 people who are your adversaries in many cases.
So that talks about the political strategy of what should be re-
leased and when it should be released. The question is not to put
out a DoD directive and say who should do what to whom. The ques-
tion is how do we enforce that. Do we not permit something to go
further if there hasn't been a literature search done? We don't
pay on contracts until we get the documents . . .? It's nice to
talk about all these little problems, but a directive isn't any good
without enforcement, so we have to address how do we enforce, how do we
decide what should be done, and then make sure it's done. Just a
philosophical discussion doesn't . . .

Ms. McClure

I know they don't, but it does help to ease the pressure and
to have everybody give their opinion . . .

Comment

To just continue Kurt's thesis here, he makes a very good
point. You've got to have general agreement. One of the things

that's very tricky about writing instructions for other people is
you've got to have fairly good faith that the instructions are going
to be accepted. One of the things we have to be very careful about
saying, "you will do this," and somebody will say, "okay, if I have
to do that I just won't do it anymore."   There's a very strong pos-
sibility of that happening. Unless we can really get a general
agreement within the entire Department of Defense and the defense
industry about what should be done, I think any specific instruction
may be more damaging than helpful.

Mr. Pearl

     I guess maybe back to adversarial relationships, there isn't
really a direct adversarial relationship between the office that
Frank represents and the Services, but there sure is potentially one,
and he's aware of that and the people at that level, although on an
organizational diagram are certainly above the Services, don't have
the right to dictate and don't have a practical way to dictate
actions on the part of the Services. So the way this kind of body
can help and the way Frank's office can and does help, in fact, is
to do a convincing job. Let people know that there's something in
it. When you come down, to bring it personally, to a Navy level,
if we can get to Navy program managers and explain to them that
there's a dollar value, a product value at the end of providing in-
formation, then there's some hope that you can get the information
into places like DTIC, or you can get the information into the Tri-
Services offices. If you try to do it top-down, this-is-what-we-
want-you-to-do, Frank's quite right. We can avoid anything you want
us to do and we have plenty of history of doing that, unless we can
see that it's valuable and bring that value to bear on each program
manager, because they're competing internally as well, and you have
to remember that. They're not independent and have some kind of a
proscribed life term for their programs and a guarantee that at the
very end they're going to come out with the product that they started
looking for. They're competing for a limited resource base with
each other as well as with the other Services. In a way, they see
themselves competing with you people in industry to make sure that
you don't give them something they don't want and won't fit what
they need. Sometimes they see that adversarial relationship, some-
times it's very real. So I guess maybe to bring the focus back to
what can be done here, when industry can get together and can make
clear that there are positive benefits to the Services to provide
any kind of information you need, then you'll get some change. And
that change will benefit the offices. Our NARDIC offices will
benefit, Mr. Molholm's Defense Technical Information Center in the
way of giving us things, because we're Service organizations, and
you'll give us the things we need to make us responsive Service
organizations.

Ms. McClure

     I agree with that. How about the rest of you. Okay. Do we
have any other comments on Issue #5? Issue #6 -- here's a real

heartburn. Centers are understaffed and poorly equipped, and in the world of Gramm-Rudman, we still can say that. Now, the effect that that new cut or reduction may have, even on the information flow -- and it seems like we're the only people that know we need it -- do you have any comments on that? This is no reflection on the centers themselves, because they haven't been given the staff or the monies to replenish their equipment. Have you had experience with standing in line four hours for the machine?

Comment

A few years ago the Army cancelled the West Coast TILO office, and there's been a fair flurry of requests that it be reinstated, including an awful lot of people that wrote letters. We neatly get the issue side-stepped every time we bring it up.

Panel Member

I think Chuck mentioned that they have revived that again, and they're taking active measures to see if they can reinstate the Army's . . .

Ms. McClure

Apparently the Army Association made it an issue with them, and they have asked for an answer on it. I don't know if anything has come through yet.

Panel Member

I'll just say from a practical standpoint in the Navy, we're very glad we brought Louise on before the freeze came through.

Ms. McClure

I think everybody agrees there's a need. We hope they can get the money, with all the cuts, to do something.

Comment

Lucille, I've had more problems with #2 than #1, as far as . . . That's with the Washington office, because mine has basically been using the Xerox machine, which is slow and cumbersome. I think part of the staffing problem is what I brought up before, when industry does not expect those people to train us, to spend time explaining what this is, and all that.

Ms. McClure

The first time this came about when we said it was understaffed was also there's no floater, or the secretary is not able to get into any of the cabinets or to help you. If that manager is out, you're out of business until they come back. It was more that rather than having more people or having more room.

Comment

. . . . We are independently working in those offices. If there is a receptionist provided by a Service, they only . . . that Service. None of us get into each others files . . .

Ms. McClure

I know. We all know that. It's just we're saddened when we go and we need an Army or a Navy document and that person is out for three or four days. It's not that person's fault. They certainly have permission and authority to go on trips and take vacations.

Comment

I would suggest, as far as recommendations on copying equipment, that the AIA buy the Centers two new copying machines and maintain them. Let industry pay for them. We'll even pay for the paper. I've seen vice presidents -- much more important people than I am -- standing in line and wasting all kinds of time on that copying machine.

Ms. McClure

I'm not sure if industry can provide government. We'd have to be careful with that.

Panel Member

Let me say something second-hand on that. I don't think there's a person here from the TILO offices. If there is, they ought to respond. But I understand that they have got the paper work in and they have gotten assurances that they're going to get that copying situation fixed.

Comment

I'm not a lawyer, but the current situation right now as re-gards taking resources, a new common objective . . . However, the new Stevenson-Wyler amendments, if they pass, could open up that opportunity. It does set up provisions for cooperative research programs. I think we might be able to stretch the definition of cooperative research programs. Just very briefly, what is says is that all government agencies now have authority to enter into co-operative research programs where the government can provide every-thing except money in the project, can take on projects if anybody is willing to put the resources into it themselves.

Comment

It seems to me one of the problems of being understaffed or under-resourced or whatever it is, is not as a result of Gramm-Rudman. It's been there before Gramm-Rudman. It comes back to the

fact that we are all interested in information exchange, but a lot of the people who really control . . . are not, in terms of priority. So perhaps we ought to take a look at more reimbursments and more cost .. . from the industry participants. That may be the only way to get initial funding, because it's not going to come through normal channels.

Ms. McClure

Very well put. Okay, #7. Too many Pentagon visits by industry are cancelled or non-productive. This general attitude is mistrust. Have any of you had that experience? How about that! Well, let's not waste any time on it, then. It must have just been perceived by the couple that told me, and it's not a real problem.

Issue #8. There's a general lack of data to scope the offer. Now, this was from strategic planners. They said the PEDS data is not enough; the RD-5s are too little and too late; . . . data is scarce; and the driver is difficult to identify. When you're looking at programs, you're trying to decide if your company should bid on it or investigate it or put some of your own money in it. These are the problems that our business people in-house perceive. Anybody in the audience have a problem with scoping the offer?

Comment

. . . major important programs take two years in advance to plan, and maybe six months to a year and sometimes longer to evaluate and award a winner. But most . . . ., by the time they get the RFP, get 30 days in which to put all of the important factors that go there. I guess a sort of subset of that is that by the time you get the RFP there's still lots of data you wish you had, but there's no opportunity to discuss it with anybody during the preparation of proposal. I think some of the committees that many of you have been on in associations suggested looking into finding some way to have a discussion while the proposal is being put together. Sometimes an important question gets lost.

Ms. McClure

So you're saying recommend discussions during the RFP phase? Anybody agree or disagree? Any other recommendations? Let's move on to #9, which is kind of a statement. I don't know if we could even recommend doing anything about this, but it was perceived as a barrier to communications. #9 -- unrealistic funding profiles. Here again, this is just a barrier that industry almost can't do anything about. I don't see that we can do anything about it. It's just a statement that we realize that this happens, that the program managers sometimes are reluctant to give us the data because of the backlash from Congress. Have any of you had any problems or can state any cases where there was a total unrealistic funding profile released to industry?

Comment

I think I could probably cite numerous examples, but I don't think that's pertinent. I think part of the difficulty in unrealistic funding profiles comes from industry itself. Very often, programs are profiled based first on industry input. Far too often, those inputs are the source of the unrealistic assessments.

Ms. McClure

Do you have a recommendation for breaking down this barrier?

Comment

Yes. I think industry has got to take an inward look at themselves and get a little more honest with the government offices they're working with. More realism.

Comment

You're talking about the profile of the actual project. If you're talking about the profile of helping government spend its money in the R&D area, you might consider that there's a general feeling, and I think General Babers said it, very clearly up front that the information is low on priority when it comes to funding. The recommendation is that if you, industry, feel that information is higher on priority than the obvious numbers are turning out to be, you would have to express that. You heard early in the meeting there are many areas . . . of Gramm-Rudman and the consequence is that information not only will not be . . . for the R&D programs, it will fall below . . . the funding profile. It's really up to you. How much do you want the government to spend in . . . .

Panel Member

Lucille, I have a comment on that. It strikes me that this is really 180 degrees out from something that was said at the start of going down this list. That is that the Services and the government should not be unduly concerned about the accuracy of the funding data that is being shared with industry because industry needs this for general planning purposes just the way it's scoped now. Well, I submit you really can't have it both ways. If this leads to unrealistic funding profiles and if the demand is to have realistic funding profiles, this will reinforce the caution about scrubbing the data, refining the data, holding the data until such point as it is considered realistic.

Ms. McClure

The person that gave me this, his comment was that when they went through the PEDS -- this is current year, not out-year funding -- they went through the PEDS and they found that no way could what they had asked Congress for be in the PEDS. That the PEDS

were like 30% more than what they were even going to request. So
that was what brought about this comment. But that was a concern
of that person that there was a barrier and we should at least dis-
cuss it.

On Issue #10, the real objectives of the program are not known
and they're not usually identified in the PEDS. Now, the comment
was made in discussing this -- and we've discussed all of these
issues several times -- and the issue was made that we really don't
know what some of these programs up front are going to be used for.
And if we did, we might be able to go back and scope the offer dif-
ferently. Do any of you have any hang-up with this issue, #10, at
all?

Comment -- cannot be heard

Ms. McClure

The MIPs are not available to industry, but I do understand that
the MIPs will now come out as an RD-5, and that's a decision that
was just made a few days ago. Hopefully, we can convince them to
turn them over to us. Did you know that the . . . MIPs will now be
in the format of the RD-5? The Navy guys haven't heard that!

Comment

I have a comment on Issue #10. I've been in marketing and I've
been in planning, and I think we're mixing apples and oranges because
the business planner has a different focus than the marketing people.
It seems to me that the marketing people are the ones that go talk
to the user community and the Service laboratories, the R&D . . .
requirements guys in the Pentagon, and all that, and they're the ones
that should be apprising whether it's required for business planning
or for . . . marketing teams what the objectives of the programs are.
I'm not sure that business planners get into that.

Ms. McClure

Our business planners do. I think different companies probably
do it differently.

Comment

But I think that's a marketing input.

Ms. McClure

Are there any far-reaching recommendations you would like to
make for our group before we go on? I want to introduce to you
Troy Caver from the Defense Management College, and he will dis-
cuss with you some of the situation analyses. I put these up in
case we didn't get any lively discussions with the barriers, I
thought maybe we might review the situation analyses and that might

open up discussions. If you have a real hang-up with warranties,
you just couldn't wait to discuss that and this would give you a
little open discussion for it. Let's go back over first and talk
with Frank.

Comment

I just want to add something for the record with Colonel
Ramsden's stuff this morning. The implications of it, I think, will
have implications for some of the things we're discussing here.
That is the two-year budget cycle. If there is a two-year budget
cycle, it stands to reason that Congress is going to want to look
at the two years that we're asking money for plus the next two-year
cycle at least. Industry might want to consider supporting that
objective of two-year budget cycles. That means four years.

Ms. McClure

We had been hoping to get more information on that two-year
budget cycle in terms of is Congress going to vote on each item for
the whole two years? Are they going to have a two-year budget cycle
and then take it each year like they always have? I haven't gotten
any information on that. Do any of you know how that's supposed to
work?

Comment

I don't think Gramm-Rudman is going to let them do it.

Ms. McClure

But isn't it already a law so that they have to start it in
FY88? I understood that it was to be started in FY88. It isn't?

Comment

The Authorization Committee approved it, the Appropriations
Committee did not.

Ms. McClure

So we may not even have one. Hopefully we will, because then
we'll get twice as much information. Any other comments on that?

Comment

Getting back to Issues #8 and #9, I would think that it would
be very much in the interest of industry to push for getting better
staffing and better on-line services through the information centers.
Just on a cost basis for industry, as it stands right now, indus-
try engineers and program developers are spending an inordinate
amount of time searching out this information, and that you could
push for better information assistance through DTIC and others.

The time would be cut down for these folks trying to search out this information, and there would be an opportunity caused where their time would be better spent and it would save industry money.

Ms. McClure

I think our partner over on the other side, Fred Lewis, has gone into actual cost effectiveness model on how this has been accomplished through using on-line data systems.

Comment

This one covers a broad spectrum and the reason I mention it is that Marty answered a question having to do with classification made a very proper statement that his document was properly classified. The difficulty is that there is complete inconsistency between the three Services about what data -- and I'm talking about scientific data, requirements, etc. -- are classified. I . . . on parallel programs, one Navy, one Air Force, where completely different requirements were imposed. This interferes with interchange of technical information, planning information, and this is something that has got to be identified straight out of the Pentagon to all the Services. I don't know if anything is being done about it, but it's a critical issue.

Ms. McClure

Standardization is always a problem and I don't know that we want to go back to the one Service, the old Armed Forces Service or something, where we merged them all together. But I agree. Something should be done.

Are we through? Did we go over all the barriers and are there any other barriers that I didn't list? Do you have any recommendations for how we want to solve some of these problems?

Troy Caver helped me on these situation analyses. I wasn't sure he was going to be here today and so I didn't include him on the program. I'm delighted to have him. He's an instructor out at the Defense Management School.

Mr. Troy Caver

You've all expressed an interest in the subject or you wouldn't be here. Let me say that our school, the Defense Systems Management College, exists not just for government but also for industry. About 10% of our students each time through are usually from industry, so if you want to get more information on how program management is done in the government and how to play in that process, you're free to ask for enrollment. The cost is free, as far as tuition. Your company has to bear the cost of paying your expense while you're there. Also, this time only 13 people out of 20 that were permitted to come came, so for some reason industry hasn't used all of its allotted quotas.

I heard these comments about barriers, and the material that I put together, starting on page 17, reflects a number of the problems that are presently existing in the government with program managers and your interrelationships with them. The first one starts talking about affordability, and all of you realize that we have affordability problems as a result of Gramm-Rudman and some of the other things. Recognize that if dollars are presently in a program, scheduled and planned, and then a Congressional staffer happens to call your company and asks someone in your company, such as a program manager, "by the way, can you buy X number of items for Y dollars," and there's a little negotiation that takes place -- and this happens, by the way, regularly, every time there's a budget drill. If you happen to have someone in your company that tells them, "yes, we can buy X number of items for Y dollars, but you won't get any logistic support or technical documentation," many times you'll find that your man has negotiated with a Congressional staffer a solution that is not what the program was planned to be. I submit to you that there is a barrier to communication that's starting at that point. I was up in the northwest this past July. A man who came from one of the industry associations there met me at a luncheon and he said he was a little late because he had just got a call from a staffer and they'd asked that very question. He said, "Yes, but you can't buy any logistics for that price." The staffer, as much of a mental midget as he was, said, "We aren't interested in buying logistics, we want to buy the system." So, I tell you there was a barrier to communication.

Does anybody have any questions about the affordability question? I don't know how you want to do this, Lucille, other than just give them time to read it and ask questions.

Let me just briefly introduce you to what each of these situations covers, and then you can ask whatever questions you want and we'll discuss them or if you want some detail from me on them, I can provide that.

The issue on affordability I just mentioned to you, and the question is for a program to survive, there has to be a manager of it, and he has to know what's in the program and continue to be responsible for it. If somebody in industry is making an arrangement through lobbying processes or other methods with Congress, and they end up structuring a program other than the one the government has structured and is planning, then you very probably will lose the advocacy for the program and therefore, next time around lose the program. So be aware that that's a potential method of having a barrier not only to communications but a barrier to future contracts.

Next item -- cost effective production. We found two items to be extremely effective in production and holding costs down. One of those was producibility engineering, and the other is the economy of scale functions of sizing a facility and putting in the right kind of automation and things such as that, and then being

able to produce at that rate and level. Many times, however, when dollars get cut, such as Gramm-Rudman is going to make them, you lose some money that hasn't yet been spent. Some of that money may be in the area of producibility engineering, for instance. That would be reducing the money available to plan the cost effective production and plan the technology processes. If that happens, you end up being really the one burdened because you have to produce, if it's a fixed price contract and under competition it will be, if you end up having a fixed price contract and having to produce, yet during the budget drills such items as producibility engineering and planning were cut out, it's probably going to cost you about 10% or more than you had planned. And that's going to be a problem to you. There will be finger-pointing back and forth between you and your government counterpart on who is the problem and why the burden exists.

Next item is the Nunn-McCurdy cost reports. I suggest that if you aren't aware of what this is all about you need to at least read this paper and certainly be a little informed on it. The government has a responsibility by law, and the Nunn-McCurdy Amendment caused the law, and that is if cost growth is at a certain level beyond the base cost, there is a report that must be submitted by the Service Secretary to Congress telling them what has been done to constrain that cost growth. If it's greater than 25%, that report has to go from the Secretary of Defense to Congress, and he must, at the same time, turn to the Comptroller and say, by the way, cease funding that program until we get this straightened out. So that can be a cause for communication problems if you aren't aware of what's happening and you tend to let the cost get just a little out of line without having already brought it up to the program manager and made some arrangements with them.

The next item that I have there is warranties. Legislation, Title X, January 1985, required that warranties be included on programs. Got a lot of mixed reaction from industry. Most of it was negative. I submit to you that's an opportunity for profit, not necessarily an opportunity for taking it out of your pocketbook. There are, however, things that the people in the government are not aware of in the area of warranties that you either are or should be aware of. Most people in the government, when they calculate what a warranty is going to cost them, examine the reliability of the item and the failure probability of that item, and then they calculate the cost of the repairs, both labor and the parts, and the shipping of the item back and forth, and they say, this is what my probable warranty cost is going to be. What they typically do not include is the cost of setting up the data base. Some airlines have told us that's $600,000 or better. Some of those costs can be extreme. Also, the risk that industry is taking on how abusively may this equipment be handled in the field, or under what conditions may it be used other than the planned conditions. Those are things that government typically doesn't know and doesn't really have a lot of

respect for that you in industry must not only know and plan for but you must put some cost risks into your price. So those are some areas of communication that you should be aware of.

There is a story about a guy in the Navy who was on a ship and in the fog, and he saw a light converging on him. He knew it was another ship coming at him and he right away sent the word up to the signal deck and he said, "Send a message to that guy and tell him to do a 15° turn to the north." The message went out and right away a message came back saying, "You do a 15° turn to the south." The man got rather indignant and he went up to the deck and said, "Send a message. Tell him I am the Captain of this ship and I want him to do a 15° turn to the north to avoid collision." The message came back saying, "I'm 2nd Class Seaman Jones. You do a 15° turn to the south or you will have a collision." The guy really got indignant at this point and he said, "Tell him I am a U.S. Navy destroyer. If he doesn't turn 15° to the north, he will suffer the consequences." The word came back, "I am the lighthouse. If you don't turn 15° to the south, you'll have a collision." I submit to you a number of things that we've been talking about here are perspectives. Each of us has our own goal and our own perspective of what we're doing out there and what the answer is, and the other guy looking is trying to do his best the other way. He's got a perspective that's different than the one you're talking about. He's not trying to rib you or get you. He's trying to do his job and in many cases he's trying to protect you at the same time he's trying to work with you. But he isn't necessarily giving you what you want. But you do have to work together to be able to communicate properly.

Let me open it up to questions now.

Question

Troy, where is your school located?

Mr. Caver

The school is at Fort Belvoir, Virginia -- 20 minutes from here today.

Question

I just finished a PMC course at the Defense Systems Management College the 13th of December, and I am absolutely disappointed when you say only 13 of 20 allocated slots were filled. I also participated in the Training with Industry program. The Air Force calls it Education with Industry. We've talked over and over again about improving the communication process, making each party aware of the other. The Training with Industry, Education with Industry, and the Defense Systems Management College, the Army's Materiel Acquisition College -- if industry will support that, you will do wonders to improve the long-term benefit of both parties.

Secondly, I think that Mr. Caver and the other folks at the Defense Systems Management College are uniquely qualified to teach government people -- government civilians can participate in the college.

Mr. Caver

Thank you. That was an unpaid announcement. Are there any questions about any of these situations? They may be new to some of you, but they are clearly a perspective that the project manager is having to deal with, and if he's blind-sided or if you don't understand what he's having to respond to, you certainly won't be able to work with him very well.

Ms. McClure

I'd like to give our panelists an opportunity to say something to you before we break for lunch. We're through a little early. Do you have something, Walt?

Mr. Blados

I think we need to conduct these types of meetings. The last one we held was in 1982. As a result, the Air Force and the Army are now showing industry the RD-5. So I think there is some bene-fit. As I say, General Lamberson and Mick Flynn and myself all think we're doing a good job in providing industry with information but I'd like to hear your views. I have heard your views and the recommendations will be looked at, and I'm sure we'll probably see an improvement. Thank you.

Mr. Pollock

I'll just close on this note, that since I am now very largely a private citizen and someone who has had a good deal of exposure to this process and has worked on the DoD/Industry Com-mittee, I would really urge the participants in this meeting and RADPIM in ADPA to work to take the material that's been generated here and to generate a strategy to break down the barriers to communications that we've been in -- which is far from simple and in fact is an extremely difficult process. But it is, as was men-tioned yesterday, just going to be words unless it is really put into a plan and effectively marketed.

Mr. Pearl

I just wanted to emphasize something that was mentioned in the talk this morning by the panel. The Navy speaker, Mr. Montgomery, mentioned that the Navy information program, what there is to it formally, was uprooted when the Material Command was disestablished, put under the Chief of Naval Research. At that time the Chief of Naval Research absorbed a great number of new functions and, frankly, didn't have much time or much incli-nation to focus on industry information. That situation is

changing. There is still the shake-out in what Navy reorganization means is changing, and from my point of view in the information end of it, it's a tremendous time of opportunity for us, since those organizational changes are shaking out and the responsibility lines are being drawn more clearly. Input from this sort of group, I think, will have perhaps more of an opportunity of being heard and being responded to now than it has in the past. I hope we can take advantage of it.

Ms. McClure

Before we leave, this is your last chance. Any more recommendations? One more. Don't go.

Comment

The competition contracting . . . can be used as a vehicle to help solicit more information. If you go to the right places, you can argue that you're going to get more competition if there's more information. The one place that's available in the Navy that might listen is that office. That might be a place to start.

Ms. McClure

Would you believe I called them yesterday and asked them for a list of items they were going to recompete, and nobody has the list? If you find the list, let me know. I don't want to leave on a sour note, but that really happened yesterday.

Thank you and let's have lunch.

WORKING GROUP SESSION B

IMPROVING AVAILABILITY AND UTILIZATION
OF DEFENSE R&D PLANNING INFORMATION

Mr. Fred B. Lewis

. . . . availability rather than utilization. We'll talk some-
what about utilization, but you have to get the data first before
you can use it, and that's the problem. So we'll focus on the first
part of this in Workshop B.

You can see we have industry and gcvernment -- two parts of
the government -- represented in this. We've chosen the Army on
purpose. The Army is the best of the three Services in doing some
of the things that we want to talk about, so we have Chuck Chatlynne
to talk about the Army information system. We also are going to
have another member of the Army talk about one of the projects we've
started to enhance the quality of the work unit. That will be Bob
Chaillet. Bill Thompson, the Director of Database Services for
DTIC will be talking about DTIC's role. (See pages 143-A, 143-B)

One of the things that is not known about information is the
cost and value and effectiveness of it. Nobody has done much in
this area. You can read a lot, you can get a lot of conjectures,
but nobody knows what in the world the real benefits are with tech-
nical information. We've done an awful lot about this in our com-
pany in the last six years, because I've tried to find out and it's
difficult to find this out. It's not an easy thing to get at. But
I wanted to share with you some of this information. It's all re-
cent, all of it gained within the last six years, all of it is from
some pretty knowledgeable people, so I think their thoughts are a
lot more valuable than mine.

I mentioned already that Bob will give you an update on one of
the projects that the new section of ADPA has already started. It
started last year, it's going on right now.

Bill will follow me with his talk on DTIC, and Chuck will be
the anchorman on the Army Information for Industry Program. John
Quirk will be here to assist us. He's a human resource expert, and
if any of you wander off the subject, he'll help us get it back on
track. He's going to record and organize the summary of the infor-
mation, so we're happy to have John aboard to work with us.

Why are we doing all this? There's a very basic reason. It's
not because there's a little bit of value that can come out; there's
an awful lot of value. Actual dollar savings, real dollar savings,
real hours saved, people, thousands of people if we do this job
better. But this whole problem is hidden. Our top management does
not understand it and the Services' top management doesn't under-
stand it. So we have to get it out in the open. We're not talking
about small increments of improvement. We're talking about 50:1,

WORKSHOP B IMPROVING THE AVAILABILITY & UTILIZATION OF R&D PLANNING INFORMATION

FRED
LEWIS
MANAGER, BUSINESS PLANNING, RSG
HUGHES AIRCRAFT COMPANY
GMHEC

BILL
THOMPSON
DIRECTOR, DATABASE SERVICES
DEFENSE TECHNICAL INFORMATION
CENTER (DTIC)

CHUCK
CHATLYNNE
MANAGER, ARMY INFORMATION FOR
INDUSTRY PROGRAM, LABCOM

143-A

OUTLINE OF WORKSHOP

FRED LEWIS — COST VS BENEFITS OF RDT&E PLANNING INFORMATION ON-LINE AT DTIC

ROBERT CHAILLET — UP-DATE ON ARMY PROJECT TO INCREASE QUANTITY & QUALITY OF WORK UNITS

BILL THOMPSON — DTIC'S ROLE IN PROVIDING ACCESS TO ON-LINE INFORMATION

CHUCK CHATLYNNE — ARMY INFORMATION FOR INDUSTRY PROGRAM

JOHN QUIRK, ARMY HUMAN RESOURCES — DISCUSSION LEADER

143-B

100:1, 10:1 -- it can be 300:1. Where else can you get this kind
of productivity improvement? I'm not sure. There are 32 Carlucci
initiatives, boiled down to six, and a whole lot of others, but I
don't think any place could do as much good as focusing on this
problem. (See page 144-A)

Let me bring you into the real world. These are from cost
studies done at a classified DTIC terminal over the last five years
in my company. (See pages 144-B, 144-C, 144-D) We did a very
simple thing. We asked the people -- and these are all Ph.D.s on
our technical staff -- how long it took them to search before they
got on DTIC, and did they find the information. Then we went on
from there. We asked them to put it in their words about what they
felt the value was, because those are the people that you're saving
the time. They know how long it takes them to scrounge for infor-
mation. They know what a miserable, tedious, boring, bad job it is.
So we can get their views of when you change and get good informa-
tion on-line.

Notice in the cost savings, besides the direct hourly figure
(and you can see a $40/hour figure or a higher figure later on --
these charts are three or four years old), there's an opportunity
cost. What in the world is that? Very simple. In the 1981 in-
formation issues for the 1980 meeting that only four of us from
industry were allowed to go to, Walt Carlson was the keynote speak-
er. He said there's an opportunity cost. When you're looking for
something and not finding it, you never get that hour back. You
could be doing something constructive, like creative engineering,
so you're also losing that time. So I've thrown in not only the
dollar figure but the opportunity cost figure. Some of you indus-
trial engineers will say that's not valid, but it's real because
you never get the hour back once you've lost it. Here's another.
He happens to be one of our experts in signal processing. This is
what he benefited by going to on-line searching. Here's another --
notice what this Ph.D. says: "I can spend my time managing." That's
what we want him to do. We don't want him to chase documents. Why
should he do it at $50 an hour where we can do it at $16 an hour.
Or we can do it on-line and we don't have to chase them at all.
They're there. The information sits somewhere in the database.

Here's a case where we save some travel costs. (See page
144-E) Somebody said, "Why don't you go see Lewis's terminal for
the heck of it." They had their tickets in hand and were going to
Dayton and Washington. We cancelled the trip and saved $3,000. We
found information they didn't know about.

Here are some productivity improvement ratios. (See page
144-F) Notice they aren't small; they're large, very large. The
old way was the manual search. The new way was on a classified
DTIC terminal, DROLS (the Defense RDT&E On-Line System).

Here's a new one. It not only included a DROLS search, it
included other on-line searches of other available databases. (See
page 144-G) The significant part of this is that he wouldn't have

PRE-RFP, RFP, CONTRACT REQUIREMENTS, COMPETITOR ANALYSIS, STATE-OF-THE-ART AWARENESS

DR. B.B.V.

- TIME SAVINGS — PERSONAL SEARCHING

  "Very substantial, at least 5-8 hours per week"

- TIME SAVINGS — DOCUMENT ORDERING

  "Again very substantial, at least several hours a week saved"

PRODUCTIVITY INCREASE 13-1	COST SAVINGS 8 HRS/WEEK X $40/HR	=	$320 WEEK
	OPPORTUNITY COST	=	$320 WEEK
	TOTAL	=	$640 WEEK

SAVE "AIR FORCE" TRAVEL COST

- 3 MEN, TICKETS IN HAND, STOPPED BY DTIC TERMINAL

- SEARCHED ALL DATA BASES FOR SUBJECT OF TRIP

- FOUND NEW INFORMATION AT EGLIN & NAVY

- CANCELLED TRIP — SAVED $3,000

144-E

SUMMARY OF PRODUCTIVITY IMPROVEMENTS

CLIENT	PRODUCTIVITY IMPROVEMENT	OLD WAY		NEW (DROLS) WAY
L.S.	350:1	41 HOURS	VS	7 MINUTES
M.I.T.	336:1	28 HOURS	VS	5 MINUTES
H.A.	144:1	72 HOURS	VS	30 MINUTES
C.B.D.	40:1	160 HOURS	VS	4 HOURS
R.H.	16:1	16 HOURS	VS	1 HOUR
E.H.	90:1	45 MINUTES	VS	30 SECONDS
M.R.	60:1	1 HOUR	VS	1 MINUTE

144-F

done this at all. It was too big a job. They don't have time to do
a good search, so you can really help out these people if you or-
ganize the whole search process when you can if you can get stuff
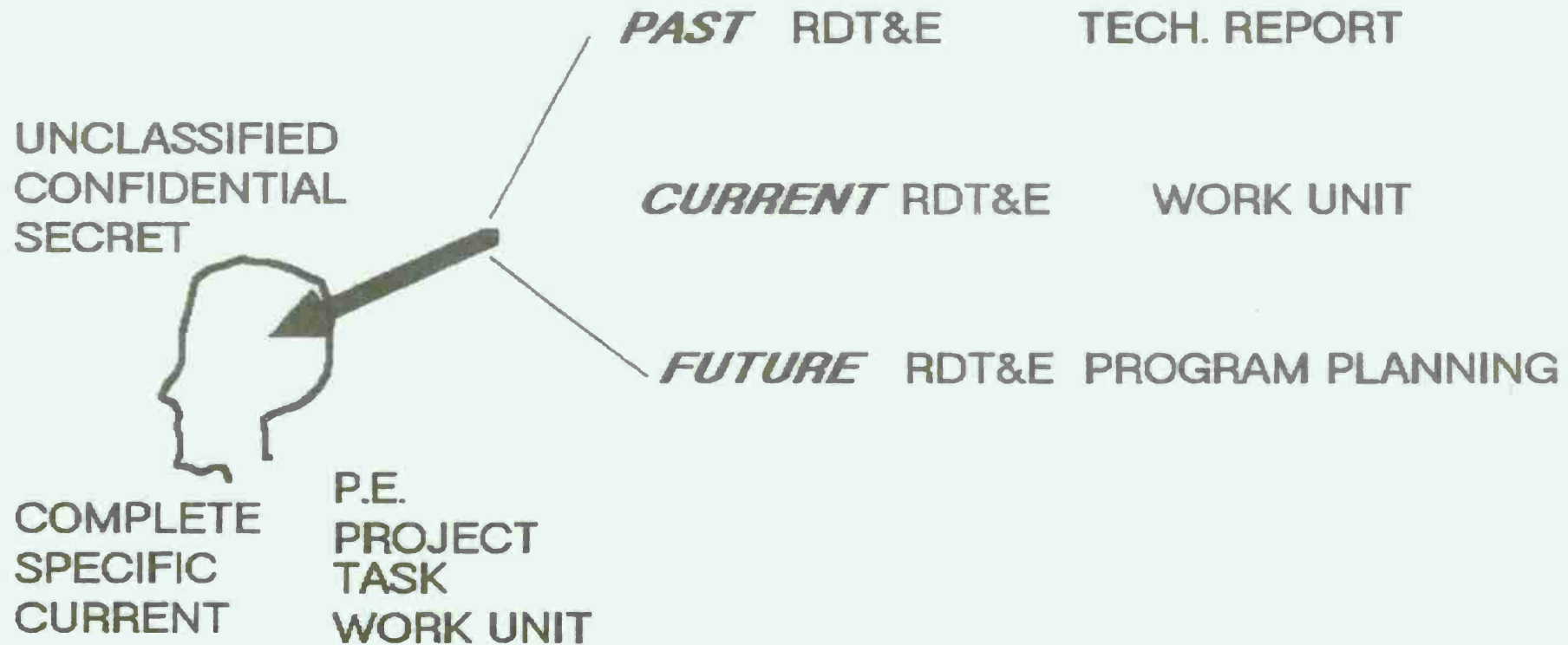on line. Big productivity increase.

Here's the key chart in the whole briefing. (See page 145-A)
The productivity comes -- it's a synergistic effect. I would give
you probably $2 for the technical report database. That brings you
up to two years in the past. That's the TR file. I'll give you
$5 for each unit in the work unit database, because that brings you
up from two years ago to what currently is going on. And also to a
very vital place, how do you find out what's going on in the govern-
ment labs if they don't write a formal report? How do you know
what's going on? You don't have time for Dr. Bill to talk to Dr.
Joe. There's too much information and you don't have time. It
should be in the work unit, and it should be on line. It's a very
valuable thing to learn. So I'll give you $5 for those. I'll give
you $15 for a program planning data base and we don't have it on-
line now. DTIC did a heck of a good job getting records on line,
but the Services didn't give them decent records. They were two
years old and by that time we've already seen that data. We need
current, specific data. The value comes from getting that person's
mind smart so he can do a better job. The mind does not distinguish
between secret, confidential, and unclassified information. I don't
care if one citation is secret. That may be the one that triggers
his thinking to get some value out of a whole team of people that
he's managing. So let's get everything together.

And you need it in a specific area. PE is too broad; project
is too broad. If we're designing a new crystal oscillator for an
improved F-15 radar, we want to know everything about that specific
area. So we need it down to PE, project, task, work unit level.
We need it specific. You put that on line and then you have the
flexibility of, in one search, quickly, either going back in his-
tory, going into the current -- in-house, competitors, contractor
world, in-house government lab -- and then what they're planning in
the future. That's a beautiful tool for productivity.

Okay, what's the problem? The problem is we don't have infor-
mation on line in the summary form on the DTIC database, or even
in the TILOs. We need to do a better job there. That's a very
important part of this whole thing. These are some of the reports.
(See page 145-B) A vice president of technology at IBM said it
better than I do: what happens if you don't have information?
Well, people are working hard, but they're not working productively.
They have to go back and do something. I have found, watching our
people come up to the terminal, say, "Oh, I didn't know that, I
didn't know that. I'll get some of my people to look at it."
Pretty soon, they come up and search on the terminal. "Hmm, we
tried that approach four or five years ago. It makes a lot of
sense." Pretty soon, we have an IR&D task going. Pretty soon,
somebody in the government finds out about it and they get together.
But this is what's happening. It's hidden, it's all over the place
and nobody has tried to cost it out to my knowledge, specifically.

THE *KEY* PRODUCTIVITY MULTIPLIER

"RIGHT INFORMATION" =COMBINATION OF TECHNICAL &
DECISION SUPPORT (PLANNING) DATA

PAST RDT&E   TECH. REPORT

UNCLASSIFIED
CONFIDENTIAL   *CURRENT* RDT&E   WORK UNIT
SECRET

FUTURE RDT&E PROGRAM PLANNING

COMPLETE   P.E.
SPECIFIC   PROJECT
CURRENT   TASK
              WORK UNIT

145-A

INPUTS TO DTIC - AN IMMEDIATE PROBLEM
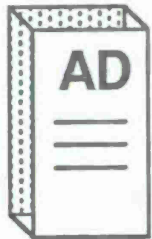
AD   I.G. SAYS 58% OF THE TECHNICAL REPORTS WERE NOT SENT TO DTIC
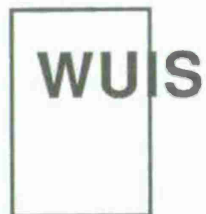
WUIS   I.G. SAYS 37% OF CONTRACTS HAD NO WORK UNITS

PROGRAM PLANNING SUMMARY   HAS 1400 ON-LINE (IN '82 HAD 40,000 ON LINE)

Let's take an average day. (See page 146-A) An average day
is defined by my terminal operator, Sherril, and I. This is what
goes on every day or on any given day at the DTIC terminal world,
and then I have another chart without a DTIC terminal world. So
there is no "average" day, but this is a composite of a lot of
different things that go on.

A very conservative assumption: for everybody using DTIC, five
people won't. It's probably more like 100, but I'll just say there
are five people who aren't. With 850 DTIC terminals, we'll say 800
of them are going to search. They'll make two searches a day, each
with a different engineer and a terminal operator on it. It will
last for an hour, and the engineer is going to find about half the
information there, so he's got to scrounge for the other half of
the information to do his job. It will take him six hours to do
that, and he'll talk to whoever he wants to talk to -- other engi-
neers, library, who cares. Each one has their own habit pattern of
how they find information.

Here are the savings you can get. (See page 146-B) If you
put the terminal operator and one engineer together in one search,
it's $75. They do two searches a day at 800 terminals -- $120,000
to get half the data. The missing half is $100 an hour at 6 hours,
that's $600 per engineer we're spending. That's probably on the
conservative side. You could save it all if you add the data in
the DTIC terminals, so that's only $960,000 a _day_ savings.

How do I know this is going on? How many times has this hap-
pened? You don't know about it, I don't know about it, but it's
going on all over the place. It may not be 4-1/2 hours. It may be
2,000 people are losing 15 minutes of time, but it's there. It's
there in spades and this is a problem we've got to correct because
we won't have the money to operate like we have in the past. (See
page 146-C) That's one case.

Let's look at the dollars we can save for the non-people using
DTIC. (See page 146-D) If they aren't using a computer to help
them search, they're going to take about 12 hours to get their in-
formation, and 80% or 90% of them aren't going to find the stuff
they need so they're going to be managing whole teams of people
that aren't quite doing the right thing. Let's assume they get
the data. It would be about 12 hours. Well, there are 5 of those
for every 1 that's using DTIC, so that's like $9 million a day.
Put it on DTIC and you save 11 hours; you can save $8,800,000 a
day. A DAY. And you add up the DTIC users and the non-DTIC users,
you're close to $10 million a day we're talking about. This is
not an insignificant thing, and I'm not claiming these numbers are
actual that I can prove down to the last cent, but I know what's
going on because I've seen, and my terminal operator has seen, 800
people come through our terminal and do a search, and then we've
investigated how they were getting information before and how they
get it now. So this is important to understand this and use this
better.

ON AN "AVERAGE" DAY

- FOR EACH ENGR. USING DTIC, 5 WILL NOT

- 800 DTIC TERMINAL OPERATORS WILL MAKE 2 SEARCHES, EACH WITH A TECHNICAL PERSON THERE

- EACH SEARCH LASTS FOR 1 HOUR

- EACH ENGR. WILL FIND 1/2 OF THE DATA VIA DTIC, SINCE DTIC GETS ABOUT 1/2 THE DATA IT SHOULD

- EACH ENGR. WILL THEN SPEND 6 HOURS TO GET THE OTHER HALF OF THE DATA NECESSARY TO DO HIS JOB (CONTACTING OTHERS, PHONE, ETC.)

146-A

ADPA-24

FEEDING DTIC'S DATA BASES CAN SAVE BIG BUCKS

COST..DTIC TERMINALS
      ENGR. @ $50 PER HOUR   OPERATORS @ $25 PER HOUR

- $75 X 2 SEARCHES / DAY X 800 TERMINALS = $120,OOO TO GET ONE-HALF THE DATA

- THE MISSING 1/2 OF THE DATA COSTS:

  $100/HR. X 6 HOURS MORE = $600 PER ENGR.
  NOTE: ENGR. CALLS OTHER ENGRS.

- IF DTIC HAD ALL THE DATA IT SHOULD, IT COULD SAVE:

  $600/ ENGR. X 2 SEARCHES X 800 TERMINALS = $960,000 / DAY

146-B

ADPA-25

HIDDEN WASTE WE MUST AVOID

ON NOVEMBER 5, 1985

- A PhD SPENT 4.5 HRS. TRYING TO FIND 1 REPORT

- COST = 4.5 HRS. X $60 / HR. = $270
  OPPORTUNITY COST   =   270
  (WASTED 4.5 HRS)   --------
             TOTAL COST $540

- DISCOVERED THIS BY ACCIDENT

- HOW MANY OTHERS, EVERYDAY?

146–C

FEEDING DTIC'S DATA BASES CAN SAVE BIG BUCKS

FOR EACH ENGR. WHO SEARCHES ON DTIC, ASSUME 5 SEARCH WITHOUT IT

EACH OF THE 5 WILL SPEND 12 HOURS TO GET THE DATA NOW, SINCE HE OR SHE WON'T GET 1/2 FROM DTIC

COST

$100/HOUR X 12 HOURS X 8000 ENGINEERS = $9,600,000/DAY

SAVINGS (IF ALL INFO WAS IN DTIC)

$100/HR. X 11 HOURS X 8000 ENGRS. = $8,800,000 / DAY

TOTAL SAVINGS = $960,000 + $8,800,000 = $9,760,000 / DAY

146-D

ADPA-26

We were very impatient with the progress being made in this, so Ernie Deadwyler suggested we go to ADPA for help, and we did. Now we've got a whole new section formed, brand new as of last September. You're here at our first conference that we've called. What we're trying to do is act as a catalyst. (See page 147-A) We don't want talk. We've had enough talk for the last 20 years. We've got to get action. We have to get some data on-line; we've got to get some data in the TILO places. So we're going to take one database at a time, and we're going to figure out a way to get it all on line.

The first one we're tackling is the WUIS, or the Work Unit In-formation Summary. To do that, we have a project that we started last year, and at this time I'd like to have Bob Chaillet from AMC come up and tell us a little bit about this project. (See page 147-B)

Mr. Robert Chaillet

Thanks, Fred. My name is Chaillet. I'm with the U.S. Army Materiel Command and my primary function is to act as the Depart-ment of the Army Executive Agent for Research and Technology Work Unit Reporting.   What I have done in my work is reviewing the data that we have in the file, and looking at the dollars that we have in the RDTE program, I came to the conclusion some time ago that we are under-reporting the number of work units. When Fred came by back in the August-September timeframe, we talked somewhat and I had mentioned to him that I had started this study three or four times but I never had had time to get on with it. So Fred said that he would undertake this as one of his efforts. What he was going to do was look at all the work units, both the active and the termina-ted, and see whether tech reports were associated with them, and whether the dollars that were there were reflective of the dollars that were in the program for that fiscal year.

One of the things that we have found so far is that it appears as though we're about 40% to 50% under-reported on the 6.1, 6.2, 6.3A programs. Our goal is to try to get 100% of these in the thing (see page 147-C), get the changes on line, and get them in the system as quickly as possible. We already have a method of doing this, and we have within the Army what's known as the Army On-Line Edit System. It's a system whereby 100 users out there can dial up and put their data in on terminals. They can do that very quickly, and make changes whenever they occur.

(See page 147-D) As you can see, Isaac Fox of DTIC has now joined in on this project and is helping us on this. What we want to do is analyze all the Army work units. We want to do it once, we want to do it right. We want to focus progressively on the poor quality, and the main effort we're going to be doing is three-fold: to increase the missing work units; to tie the tech reports to the work unit; and to improve the quality of these things. We note that the quality is very poor in many cases.

A CATALYST TO MAKE THINGS HAPPEN

OSD

ARMY

NAVY

AIR FORCE

INDUSTRY

ADPA

FORMED IN
SEPT '85

NEW
ADPA
SECTION
RADPIM

→A

→N

→AF

FIRST   JOB

WUIS QUANTITY & QUALITY

WUIS QUANTITY & QUALITY

WUIS QUANTITY & QUALITY
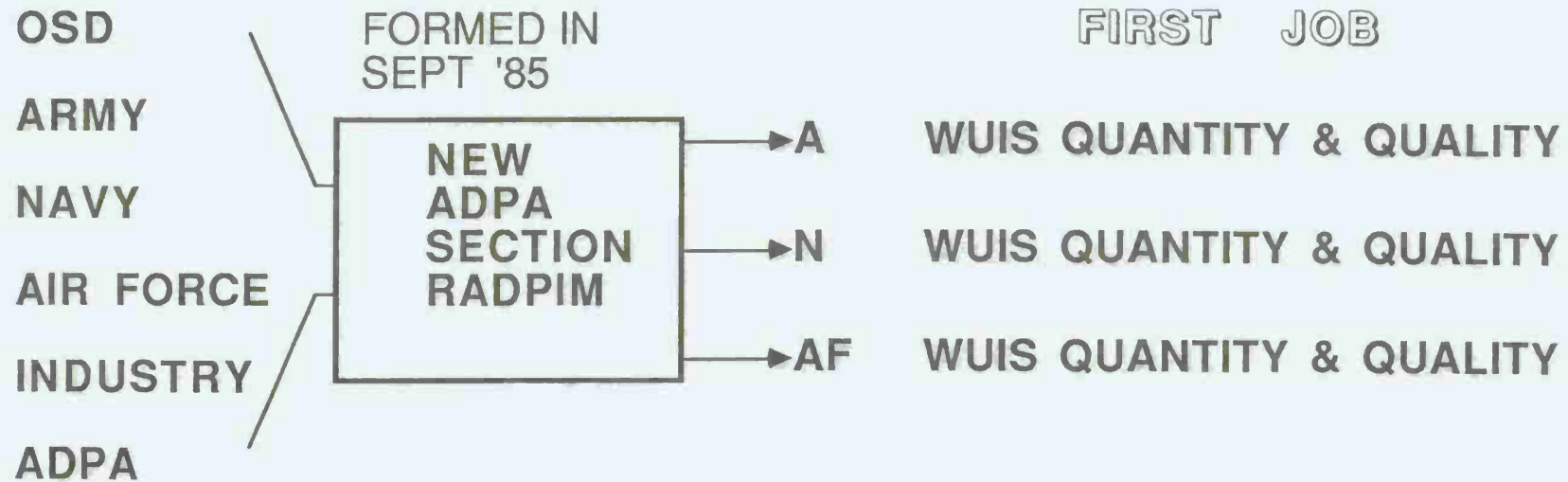
147-A

RADPIM = RESEARCH AND DEVELOPMENT PLANNING
INFORMATION   MANAGEMENT

ADPA-5

SOLVE THE ARMY WORK UNIT INPUT PROBLEM COMPLETELY AND ESTABLISH MANAGEMENT DISCIPLINE AND CONSISTENCY

GOAL

- 100% OF ALL ARMY RDT&E WORK IS SUMMARIZED IN A WORK UNIT AND PUT ON-LINE WITHIN 30 DAYS

- CHANGES ON-LINE WITHIN 30 DAYS

- EACH WORK UNIT MUST SHOW A REFERENCE TO THE DTIC TECH. REPORT FILE THAT IS SPECIFIC

147-C

ADPA-21

ARMY TOTAL QUANTITY & QUALITY
INPUT SYSTEM

TEAM   ROBERT CHAILLET   AMC
                  ISAAC FOX   DTIC
                  FRED LEWIS   INDUSTRY

HOW

- ANALYZE ALL ARMY WORK UNITS
  DO IT ONCE
  DO IT RIGHT
  FOCUS PROGRESSIVELY ON THE MISSING OR POOR
  QUALITY WORK UNITS

- SOLVE PROBLEMS STANDING IN THE WAY OF GETTING
  WORK UNITS ON-LINE WITHIN 30 DAYS.....RADPIM A CATALYST...
  MILITARY & INDUSTRY SOLVES THE PROBLEMS

147-D

That's about where we stand today, and we've got a long way to
go.   Thank you.

Mr. Lewis

Thank you, Bob. This is the kind of action that I'm personally
thrilled with. We're looking at a problem the Services have ignored
for 15 years. They haven't had any real push to get better input,
and we've got to do that. If we don't, we're going to suffer the
productivity inefficiencies that we've had for a long time.

We have another project planned for after we get the input
thing organized and working, with DTIC to pick it up. That's the
crucial part of the whole system. They have got to take on the job
of the input enhancer in an actively aggressive way, because they
can do it once for all of DoD, where the Services would have a dif-
ficult time doing it in the way they're organized in many different
places. They can do it once; they can do it right. Once it's
right, it stays on line and it's usable. If it's wrong, if it's
poor, sometimes you can't even get a computer to get on it because
there are so many misspellings in the individual work units.

We want to then teach people how to use it after we've got the
inputs there. (See page 148-A) A lot of people aren't using the
work unit files for a variety of reasons. The in-house folks in
the Service are probably worse than government side, although I'm
not sure. But we'll be happy to train anybody in three hours how
to use all three systems together. Sherril has given a talk and I
think she's planning to give another talk on how to search back and
forth in the different databases when we get the data on line.

This is the team that's going to work on the discipline of
training people and keeping it up. We recognize that this is a
problem. DTIC's training is wrong; 95% of it is in one file, the
TR file, or some high percent. You don't want to just stay two
years in the past. You want to get up in the present. So you have
to increase the training on the work unit file and you've got to
get program planning stuff and increase on that, too.

I wanted to say something about the Air Force. We have the
same thing started now in the Air Force that we've started with
the Army. We have two people from AFSC, Bob . . . and Walt Blados,
that have been tasked to help us. We're going to do exactly the
same thing with the Air Force that we did with the Army. We're
just getting information on that project, so it's three or four
months behind the Army one. But here's a recent problem that we've
got to solve. Two years ago, industry could see all of these
things, so about a month ago I just made a . . . of what's the
active radar work units. We have a fairly strong need to know,
making airborne radars, and so does Westinghouse and TI and the
other makers. It's done in industry, it's not done in the labs.
So all of a sudden you've got new classifications of releasing, and

RADPIM PROJ. 2 | ARMY MANAGEMENT DISCIPLINE SYSTEM TO MAKE EVERYONE USE THE WUIS

TEAM BILL THOMPSON   DTIC
      ROBERT CHAILLET   AMC
      FRED LEWIS   INDUSTRY

HOW

- CONTINUOUS MONITORING OF TERMINALS USING WUIS... WHO DOESN'T USE IT & WHY NOT?

- EDUCATION & TRAINING FOR NEW DTIC USERS

- EDUCATION & TRAINING FOR OLD DTIC USERS

- MANAGEMENT GUIDANCE & INSISTENCE ON USING WUIS EVERYTIME YOU NEED TO

148-A

all of a sudden, 41% we can't see on line. I know at least three of
them are our own that we're working, and there's something wrong with
the system that we've got to change. I think the basic thing is to
simplify those codings. Why can't you have one code that releases it
automatically to DoD and DoD contractors only. Period. Subject to
the proper need to know and security provisions.

One of the things that the government doesn't understand, I
think, is the fact that we have it on line in DTIC doesn't mean that
our 10,000 people can see it. We have a very strict control at our
end of the DTIC classified terminal. We have to have a need to know
established in writing on a card signed by the guy's boss before
we'll ever show him anything on the terminal. And if he's working
in one area and changes areas, he has to go back, his boss has to
approve it, we have to have it on record, then we'll let him see
just what's going on in the new area. So there are controls on
classified systems, an awful lot of controls. I think that's some-
thing that should be understood a little better.

So this is what we want to do. (See page 149-A) Instead of
thousands of people, every day, scrounging for information and doing
it poorly and not getting it, let's do it once and let's do it
right. We want one-stop shopping. The summaries should be on line.
You don't want to spend a lot of time. If you want to get a feel
for something, you don't want to dig through a whole lot of pages.
You have to have computer help. There's so much information out
there, there's no way you can physically go through 2,000 records
in a TR file or 180,000 work units, so get that on line. Get it
up through secret. Don't even worry about lower classifications.
Make it classified and have the proper need-to-know and security
provisions for access, which already exist.

The key to the real force multiplier, as Bill Zeigler said,
is the program planning database. That has more direct correlation
to business decisions on how we spend IR&D, how we spend bid and
proposal money, how we spend capital money than any of the other
ones, and it's in the worst shape. That should be DTIC's number one
priority. The second most important is the work unit, and that
should be the number two priority, and the TR file is probably in
the best shape and that should be the number three.

Now, I haven't meant to slight the Tri-Service or the TILO
offices. They're a very important part of this thing. They should
have the hard copy requirements planning documents. Why sanitize
them? That's extra time and waste of time. Give them the classi-
fied ones. You have proper need to know; they won't show it to
people that aren't cleared. Don't go through the whole process of
sanitizing. That's a lot of waste. I don't know how many hours
are spent on that, but probably quite a few. Also, it will speed
up the whole process of getting them available. So if there's a
requirements document, a draft . . . ., don't let it sit at TRADOC.
Get it over there and get it on line. A lot of them have been
sitting in TRADOC for a long time. When there's a new planning

ONE-STOP SHOPPING

SUMMARIES
DTIC

SUMMARY DATA ON-LINE
VIA DTIC

CLASSIFIED UP TO SECRET

MANADATORY INPUTS WITH
MANAGEMENT DISCIPLINE

TECH. REPORT, WORK UNIT,
PROGRAM PLANNING, IR&D

DETAILS
TRI-SERVICE
TILOS

DETAILED DATA IN HARD
COPY FORM

REQUIREMENTS DOCUMENTS

MASTER PLANS

BUDGETS

PLANNING DOCUMENTS

149-A

document, it should be at the TILO or the Tri-Service office within 30 days of approval, and there should be a mechanism managed by the Service to make that happen. It's not all that hard, if people who are involved in the input process realize they're supposed to do it. I'll give you an example of how important that program planning database was. This happened in 1981. When DTIC went to the effort of following up, Hugh Sauter was running DTIC at that time, and called a few guys from industry to come in before the national conference. Charlie Martin and I went in and talked to the Director and the Administrator. Charlie said, "I've made a study of the work unit data base and there's not a lot of . . . records in there. There should be more. Why don't you go shag inputs? Why don't you go ask the Services for some." So what happened? This was in October. In November, the Air Force sent in 600 program planning summaries in the old system and DTIC checked them. They were a year old. They went back to the Air Force and said, "we don't want your old stuff. Give us the new stuff." So they did. It came on line towards the end of November. I was looking for some information and found a new program planning summary. It happened to be on a new effort that the Air Force had just started on . . ., and there were no PEDS, there were no really good planning documents. I talked to a marketing manager that afternoon, and he said, "We have a prime contractor coming in who wants to team with us on this new effort and we don't have very good information." I told him maybe I could help and he was delighted to get that. We had 10 people the next morning from a prime and us, all talking about that program, and we knew what the Services were planning, no matter how preliminary it was. We didn't have a lot of conjecture where we thought we knew. We at least had a very well written program planning summary. That's the value of getting that kind of thing on line.

With that, I'd like to close my part of the talk, and now I'd like to hear about a very important part of this whole process, which is DTIC's role in handling this information. We're fortunate because we have the guy who's in the spot to make this happen at DTIC, and that's Bill Thompson, who is the Director of Database Services. Bill has worked a lot of different places in DTIC. He has the background to know what's going on, and he's in the right spot to manage this function. He has Air Force experience and he has an undergraduate degree and a graduate in Ceramics Engineering from Ohio State. So let's welcome Bill Thompson who will tell us about DTIC's role.

Mr. William M. Thompson

If my function was to try to throw out some things to stimulate discussion after Fred's finished, I can't think of anything I've got left to say from DTIC's perspective!

The topic is how to improve the availability of defense planning data, and from DTIC's perspective, I can say the best way to do that is to give us a chance to do it by letting us function as a central access point, a controlled source of planning requirements,

programming type data. That's clearly our function. It's within our mission to do that. It's our reason for being.

Our function, as Mr. Molholm said yesterday, is to provide a repository for documents, classified and unclassified. To provide a source of centralized databases about R&D planning and ongoing information, both classified and unclassified.

What we need is a coherent set of procedures and policies and support that would get to DTIC so we could put it in databases, put it in our document collection -- the information that industry needs.

Our role, our challenge, is to work with both industry and the sources of data in the Services and come up with mutually satisfactory, satisfying procedures for getting the data from the generators of the data and providing it in a manner that it can be made available on a broad, equitable, controllable basis. In the last couple of days I've heard a lot of discussion about two things which I think are really non-issues. Number one, the fact that some of the data is classified. DTIC's reason for being is to provide classified information and to handle it. We have an exceptional record for handling classified information, as well as sensitive information. The people who are asking for the data likewise have the necessary facilities and clearances to properly handle and control it. The other non-issue that I keep hearing is that availability of this data gives some people a non-competitive advantage. By having information in a central source, that's the best way to do away with non-competitive advantage. The current system is what contributes to non-competitive advantages, where the "old boy network" and corridor prowlers go through the Pentagon using their old ties and whatever to get access to information. That's the inequitable way of providing planning data, and that's what's happening. That's why some of us are being asked to take part and to testify in the GD trial that's coming up next month.

So what are some of the things that DTIC can do? Obviously, one of the things it can do is upgrade the work unit system. We've heard a lot of discussion about the fact that it is not complete and it's not current. All that is true. The system itself needs to be upgraded, and DTIC is committed to doing that.

We can do a better job of providing a central access point to documents. There's a myriad of requirements, objectives, planning type documents that are available. Other things that contribute to the inequity of access is not everyone knows where they are and how to get them. If DTIC can play a better role in pulling all these things together in a central file, a central repository where they can be made available on an equitable but tightly-controlled basis. Tell us what the classification is, what the needs to know are, what the sensitivities are and we'll control them.

In the 1982 Information for Industry Conference that took place at NRL, Rod Alderman from GE gave a briefing in which he

identified well over 100 relevant requirements and planning type documents that originate at various levels in the Services. These things could be made much more easily available by having them in a central place.

One of the biggest problems, and I guess one of the things that really precipitated this meeting, is the problems we've had in providing a program planning database, a program summary database. We addressed the problems of having a program planning database that was initially based on the old 1634s. The requirement to produce those documents was cancelled several years ago, and we were directed by OSD to come up with an alternative. We came up with an alternative. My colleague, Carlynn Thompson, worked very hard to put up a database based on the RD-5s, and now the RD-5 format is disappearing. As you heard yesterday, General Babers has now tasked DTIC to come up with a planning database based on the PEDS by June or July. I don't know whether we can make that. That's a heavy assignment at this point.

I don't know what else to add to this. Bill Zeigler earlier talked about the pressure points. I think what we need, what everyone needs is the proper pressure points. All information activities work with the same problem. We don't generate the stuff, as Mr. Molholm said. We have to rely on people sending it to us so we can properly store it and retrieve it and add value to it by making it selectible and sortable and able to be packaged and whatever. But we can't do that unless we get it. The pressure points, the focal points, the people that can make it happen -- we've got to get them together. One suggestion was made that there ought to be a steering committee representing ADPA and some senior representatives of the DCSR&D level, the people that generate the requirements and planning documents. Let us work together and identify both the sources and the problems, and if new procedures have to be developed, let's do it.

There are some problems, I guess, using the current need-to-know procedures for getting planning documents. The current need-to-know procedures are based on accessing data in very narrow areas. If you pick up a big planning document, it covers broad areas and I think we have to come up with a mechanism for handling those things on a need-to-know basis, but I don't think that's impossible.

I think with that I'll stop.

Mr. Lewis

We have one more speaker, so you can be thinking of your questions. Just note them down and we want to have a good question and answer period. But we'll wait until we have our next speaker before we get into that part of the program.

Our Army speaker has such a long title -- it's Chief, Technology Information Branch, Technology Integration Division of the Office of the Deputy Chief of Staff for Technology Planning and

Management at LABCOM. This is a fairly new position and he does many
things besides handle the Army Information for Industry Program,
which he's going to tell us about. He's involved in technology
transfer and also in the unsolicited proposal area, and I think
they have some new thoughts in that area.

Let's welcome Dr. Chuck Chatlynne.

Dr. C. J. Chatlynne

I'm going to present this same briefing at all of the technology
symposia. My reason for giving this today is to provide a baseline
on what the Army is doing and to touch upon a few of the initiatives
that we hope to have in the next year. I'm going to talk about what
the TILOs are doing, mention a little bit about unfunded studies and
how they can help industry, and talk about the potential contractor
program and how they can help you, and finally some advice and
guidance on unsolicited proposals.

As most of you know who visit the Technical Industrial Liaison
Offices, we try and begin by providing general advice and guidance.
This can begin, with some visitors, by explaining what an RFP is
and how to respond to an RFP. In the area of Advance Planning, you
all know that we have the descriptive summaries. As far as contact
points, we have a complete set of all the organization charts, as
well as TRADOC and AMC documents, so we can listen to what your R&D
capabilities are and help you find out who to talk to in the Army.

As far as budget information, we have the R&D programs, the
R-1 and the Procurement Programs in P-1, and in the area of the
descriptive information, we have a document called the Army Moderni-
zation Information Memorandum. This is a document that's about a
foot thick. It contains drawings, components, characteristics and
operating requirements, and operating characteristics on a whole
multitude of Army systems.

In the area of requirements documents, any of you who have
visited a TILO and said, "what requirements documents do you have,"
we may have one or two, if we're lucky. I've been talking to TRADOC
over the last several months and I finally got in touch with the
right person at TRADOC. He fully understands the requirement of
industry having to have these requirements documents. He will be
working with us to institutionalize the process of providing all
approved requirements documents to the TILOs with information re-
moved that industry should not see. This does not mean making them
unclassified documents. They will have classified information in
them, but there are areas that are not available to industry.

In addition, we are going to be having a program in the next
year to provide draft requirements documents to industry to en-
courage comments so that when we finalize these requirements docu-
ments, they will reflect the technology that's available and that's
upcoming. For example, if the Army needs a pogo stick and we say

we want it to bounce three feet in the air, industry might come back and say, "we already have one that bounces four!" This is our approach. Incidentally, there are nine Technical Industrial Liaison Offices which represent all the commodity commands, plus there is one, as you know, at the Tri-Service Office in AMC. With the question of Pasadena, as General Cercy mentioned yesterday, this will be re-examined in the next fiscal year. Currently we can't do anything about them. I've been trying.

Unfunded studies -- it's essentially a no-cost contract. When a company enters into an agreement to do a no-cost, unfunded study it provides for greater access to information than the company might have otherwise. Indeed, some companies use this as a mechanism to generate top secret billets. It's a two-way street. When I indicate that there's Army consultation, it provides real time consultation with the Army and while the study is going on, the information goes to the Army also. These unfunded studies can also be used to generate a need to know in an area where a company currently does not have a need to know. And, of course, if while you were performing this unfunded study you were talking to the Army, there will obviously be greater mutual benefit.

Many of you are acquainted with the QRI program -- Qualitative Requirements Information. We are trying to expunge that term from existence. There is no longer a QRI program, but we've retained part of that which is the sponsorship of companies with the Defense Technical Information Center. We're calling that the Army Potential Contractor Program, and what the Potential Contractor Program Manager does is certify need to know of companies who are either between contracts or who have never had a contract. What then happens is in the process of registering a company in the Potential Contractor Program has with it the registration of companies with the Defense Technical Information Center. This allows them to obtain documents in this new area of interest, and it also allows the company that is between contracts to retain a classified library until they obtain a follow-on contract. In addition, when a company is registered with DTIC, their capabilities are listed in the Dissemination Authority List, which is published by DTIC and is used throughout DoD to confirm need to know.

In the area of unsolicited proposals, I've gotten many calls from people who say "now that we have the Competition in Contracting Act, we do not have to evaluate unsolicited proposals anymore," and industry asks, "am I wasting my time by submitting unsolicited proposals?" The answer is no to both of those. The Army is still interested in obtaining unsolicited proposals. They still have to be unique and innovative. An unsolicited proposal cannot cover something that is a commercial product. If you make hiking boots or combat boots, you can't get funding for that and sell it to the Army under the unsolicited proposal mechanism. We encourage you to make preliminary contact with scientists and engineers before submitting an unsolicited proposal, and that's one of the functions of TILO -- to help you find out who to talk to. A caution, though. When you talk to a scientist or engineer and he or she says,

"Hey, that looks interesting. I would certainly welcome an opportunity to be able to evaluate an unsolicited proposal in that area. Of course, I may not have money," and so on, ask him or her who the unsolicited proposal coordinator is. Send your proposal to the unsolicited proposal coordinator and not the person you've been talking to because that person may put it in his in box and forget about it. So as I say, find out who the unsolicited proposal coordinator is and send it to that person.

Now, what is in an unsolicited proposal? These items are what you should include in an unsolicited proposal, plus the following items. Indicate why your unsolicited proposal is unique and innovative. It has to be both. It has to be unique and innovative. If you do this, you will help the person who is trying to buy your idea to put together a sole source justification. All sole source awards must be reviewed and approved by each command's or activity's competition advocate. This person must be convinced that the unsolicited proposal is unique and innovative. There's one additional concern on the part of industry and that is all sole source awards must be synopsized in the Commerce Business Daily before negotiations can begin, and through that process competitors can find out what people are proposing and so on. Proprietary information is not to be synopsized in the Commerce Business Daily, nor is classified information. So if a proposal is proprietary -- and really, they all should be -- the requirement to synopsize in the Commerce Business Daily is waived.

A few hints about unsolicited proposals. Make them short and easy to evaluate. As I indicated before, make sure that the unsolicited proposal coordinator gets it and include a copy of the Memorandum of Understanding. These are available from the unsolicited proposal coordinators and from a lot of the scientists and engineers that you're talking to.

What's our responsibility for an unsolicited proposal? First of all, we must acknowledge receipt within five days, and we have to give you an acknowledgement within 90 days. I have the additional responsibility, wearing an AMC hat at LABCOM, of being the official bean counter for all unsolicited proposals submitted to any AMC activity. We are trying to make sure that these requirements are satisfied. I will be submitting a quarterly report to General Thompson which explains to him how the bean-counting activity is going with respect to unsolicited proposals. If you feel you have a problem with having submitted an unsolicited proposal anywhere throughout AMC and you're not getting action, feel free to call me.

The last slide is going to be a picture of one poor individual who did not visit a TILO office. It says, "A remarkable vaccine, Professor Steinmans, but bear in mind that hamsters very seldom catch dutch elm disease."

Mr. Lewis

That completes the talks by the panel. The next part of the meeting is going to be very informal. We want to get all your best thoughts about how we can really improve the availability or utilization of planning information, and you can address questions to the entire panel, to individual people, whatever you want. We encourage a dialogue and we'll be happy to discuss any facets that you might want to.

Question

I have several questions. I'm not that familiar with the total R&D effort. I've only been . . . for about six months so if I act . . ., please bear with me. Where are the control mechanisms in DTIC to make sure the Services are, in fact, providing you with work units and technical reports? Are you monitoring that on a timely basis? And challenging the Services to come back to you?

Mr. Thompson

Those are good questions. We do, especially in the work unit area, provide back to the focal point periodic data on the status of their files and how delinquent the data are. Where we've not done a good job in the past is on trying to anticipate what they're not sending us in terms of new records. It's hard to count what we don't have. We do a lot of statistics on what we do have and how current it is, but we haven't done a good job in the past.

Question

I think the point is that you're not pulling the Services along, and I'm in one of the Services as you can plainly see. They're not going to respond. It's a simple, basic rule of thumb in the Services or any other organization. If you want the data, you get it or shake the tree.

Mr. Thompson

DTIC is not in a good position to shake trees. We have no authority over the Services. There is a regulation that states the requirement. The new interest in bringing the system up to date evolves from our attempts to get the IG involved. Now, we have the IG involved. We have Mr. . . . involved. Now we're getting interest.

Comment

I'm sure . . . generate interest without getting the IG involved. You have a three-star general that I've known over the years, and I'm sure if he's made aware of this problem he can initiate action either on the DoD staff level or down to the Services to get the kind of information you need. But if the

mechanism is not there and if you're not the squeaking wheel, you're not going to get it.

The second part of that which is a . . . on one of the statements you made, do you have any mechanism in DTIC if a query, whether coming in on-line or off-line, cannot be entered -- in other words, the user is not satisfied with the information he had either gotten or failed to get, is there a mechanism where that type of information is brought to the attention of the DTIC information managers?

Mr. Thompson

I'm not sure I understand your question.

Question

I'm a . . . at the University of Texas. I get on the DTIC terminal. I request research on optical lasers done in the past two years. I personally know of three studies that aren't in your data base, so as a researcher I say, "this query response is inadequate." Is that mechanism there? I don't know. I'm just asking. It seems to me that report should be flagged somewhere for someone at DTIC to either go out and aggressively pursue getting that information so people can get it.

Mr. Thompson

Where it is brought to our attention, yes.

Question

Can the guy at the terminal let you know through the system?

Mr. Thompson

Yes. There is a provision in the on-line system to feed comments back into the system about errors in the file, about ---

Question

Not errors in the file.

Mr. Thompson

I used that as an example, but the procedure is there to do that.

Question

Does that mechanism track as part of an in-house procedure to make sure you're satisfying the user requirements?

Mr. Thompson

Again, when they're brought to our attention, yes. The answer is yes.

Question

But I don't get a warm, fuzzy feeling that it's actually being pursued.

Comment -- cannot be heard

Question

So in other words, the user must be aware of the fact that he has a problem. He has to let you know somehow -- not necessarily through the on-line terminal?

Mr. Thompson

Any way he chooses -- call, write a letter. But you asked the question is a provision on-line for feeding back problems or lack of satisfaction, and that answer is yes.

Question

A suggestion -- and I don't know if this is possible. . . . data is available on computer terminals somewhere within DoD today.

Mr. Thompson

Are you talking about the PEDS data?

Question

The PEDS data. Is there a problem going from one classified computer to a DTIC classified computer?

Mr. Thompson

I'm not aware the PEDS data are on any terminals, per se.

Question

I didn't say terminals, I said on computers, whether that's a mainframe or a micro, I don't know.

Mr. Thompson

Yes. And the Army itself has been very cooperative in giving us, or at least promising to give us PEDS data on tape. We got the RD-5 data on tape from them -- in fact, two submissions of RD-5 data on tape to try to build the RD-5 database.

Question

No, no. I'm not asking you to build a database. I'm asking and suggesting that if the Army has this data already in a usable form, can't you extract that from one computer to your computer and have it on line when the Army submits this data to Congress? And then it's a matter of once it's released, it's released. You don't go through the drill of getting a printed document . . . .

Mr. Thompson

The answer to your question is yes. That's what we are trying to work out with the Army right now, because they do have that data on tape.

Mr. Quirk

Let me suggest, in the interest of time and fairness to all, since we have about an hour left before lunch, that we move on and any more detail to your questions, we'll catch you afterward.

Question

For Mr. Thompson, a very quick question. I was very impressed with what you showed us that you have a good . . . on what the problems are. You seem to have a lot of the answers defined and I find that very gratifying. I think you essentially have the whole thing wrapped up here, except for making it happen. What can we, as users in industry, do? What should we be doing to help make all this happen? Obviously, you know what the answers are; you're just having trouble getting there.

Mr. Thompson

I'm not sure, other than this meeting, and the establishment of this group within ADPA is a good first step. This pulls together the voice of a user community in a focused manner.

Mr. Lewis

Let me add a quick response to that. One of the good ideas that came out from the Army that we're going to try to do -- in this Army program to enhance the Army work unit databases, we have a DTIC User Council that represents all 850 users of DTIC terminals, and there is a person on that Council assigned to the management databases, the work unit and the program planning summaries. This person is going to sign some letters, attached to poor quality work units, and send to the bosses of the people that do them, saying that we would certainly like to have a higher quality input to work units because if we don't clean up their spelling the computer can't pick it up, nobody can use it. We're trying to be more specific in our feedback to people to help them out, to show what's happening and to try to get more visibility to this input problem.

Mr. Quirk

Fred, in our planning for this meeting you had mentioned, hopefully, the formation of a steering committee or a working group out of this conference, and this might be a good time to solicit interest in participating in something like that, so we have action as well as the words. Would you be interested in going into that a little bit?

Mr. Lewis

Does anybody have any comment about wanting to volunteer to help or offer pros and cons on a steering committee? We do plan to keep active in ADPA and we'll be setting up more project teams and we'll be working with the other Services. We'll have to decide that before our wrap-up on just how we're going to handle that.

Question

. . . . The main thing that I can see needs to happen . . . a lot of the people who receive the DTIC training and the real high level of information about work in the databases are the terminal operators. The program managers or the . . . planners or whoever in the company who might need to know that information don't really want to have the hands-on training to learn . . . databases. . . . to tell the program manager the level of information they need to know without having to sit down for three or four days at a training session for hands-on at the terminal, but make them smart enough to know what to go to their terminal operators and ask.

Mr. Lewis

That's an excellent question and we're perhaps somewhat unique in that I'm not in the library; I'm in a planning shop. We're the only ones that have the classified DTIC terminal. We have five or six dial-ups in the libraries of the different groups of Hughes. Our method of working is quite different from the library. We do not wait for people to come to the library because we know they don't have time. They won't do it. So we go out to our management and one of the first things that I did on our terminal was I went to the staff meeting of our advance systems guy, who ran a laboratory with a couple of hundred engineers. I said, "Here's a new tool. Probably it's useful; I'm not sure how useful. Let's try it out." The manager said, "I want you to go in twos down to the terminal and search and see if it's any good." We spent five minutes just supporting them, and they're some of our best users now. We changed the ways of about 200 people from manual to computer searching. Sometimes you have time to go to libraries, sometimes you don't. In the beginning, they don't know how to search, don't know what questions to ask. There is a bridge necessary to define what it is you need and why you need the information, will it do you any good, does it fit into your decision process. Is it an extraneous request that shouldn't really

be wasted on resources. That's not done too well now. I think a
lot of our companies can do a little better job on that. We're
finding now that after we've educated the people on the DTIC
terminal, they're searching and getting about 10% of the data they
got before, but it's right on target and we don't have to go
through the other 90%, which we did in the beginning, to focus our
efforts.

Question

Is DTIC concerned about the question of at what level in a
company the information is available? Are the program managers
giving it . . . . an educational process, as a marketing process?
Within a company, if I'm an operator and I come in the library, I
can only do so much without some sort of . . .

Mr. Thompson

I guess the answer to your question is our marketing, our
feedback is generally back to the intermediaries, the people who
use the data directly. I think, unfortunately, we don't have any-
thing aimed at the higher levels in the company.

Mr. Lewis

I'm more a user than an intermediary. I'm not in the library.
We find that industry, that other companies, several of them, are
getting the classified terminal, putting it in a planning shop,
not in the library, and I think they are addressing this very prob-
lem of trying to broaden the coverage, get it closely coupled to
the marketing operation and the program managers and those kinds
of things.

Question

I have a follow-up to the lady's question. If I heard her
correctly, it's the same problem I've had for several years with
DTIC. I've understood DTIC, . . . what it did, and how informa-
tion got in. But I never have seen an information program come
out and say that this information is available . . . Many people
don't know that much about the DTIC data, how valuable it can be.
And it's . . . within the government.

Mr. Lewis

I know that the head of DTIC is interested in doing a better
marketing job to get the word out in various ways. There are some
pamphlets describing the overall approach of the DROLS and some
other things, but that is an area where I think more work can be
done.

Question -- cannot be heard

Mr. Thompson

Essentially, the responsibility for getting data into DTIC rests
with the Services. In the work unit system it rests with the guy
who does the word or monitors the work. In terms of the technical
reports again, it really rests with the COTR on a contract or the
principal investigator of the in-house effort. The form that's in
the reports is covered by a MIL-Standard, which is normally cited
in contracts. Now, it is true there are words in the FAR that talk
about sending stuff to DTIC, but those words are really quite insuf-
ficient and we're hiring some people now to try to address these
issues a little better.

Let me get back to the Colonel, because I'm not sure I totally
satisfied him on questions he asked a little earlier in terms of
what DTIC is doing, pulling stuff out. We are developing programs.
I've reorganized my staff, brought more people in. We're writing
programs, for instance, to look at the procurement database, iden-
tify contracts that have been let, and checking to see if those
contracts have been cited in the work unit system, comparing the
dollars against program dollars and things like that, to try to
identify the gaps in the areas where we're not getting input. In
terms of technical reports, we do have a very active acquisition
effort. Again, they use every resource they can to try to identify
where reports should be coming from, then go out and get it.

Comment

Don't get me wrong. What I've heard here today is better than
what I learned three months ago . . . when I hit the IR&D. The
thing that amazed me then was -- and some Services were doing bet-
ter than others. I talked to NASA . . . and NASA, of course, is
a tremendous . . . of the IR&D. But the lack of proper . . . or the
lack, in some cases, of not doing the tech evaluation at all, and
then allowing to get away with that certainly does not contribute
to the exchange of information. That's what we're talking about.
If it's the government, if it's on the contractor side, I don't
know. I don't know what the legal ramifications are of contracts.
I'm not in the contracting business, but I would say if the govern-
ment goes out and contracts, and part of that contract included
tech data -- proprietary data, if the government buys it or . . .
or whatever -- that could also be part of the tech data. . . . .

Question --

. . . . Last October or November I completed a study on Army
R&D use of DTIC . . .   It was presented at the DTIC Users' Confer-
ence . . .   DTIC is providing a very useful service and they're
trying very hard to . . . the Services and to make them known to
the user community. But I find some evidence that within the Army
user community the Army users are not taking the initiative to make
the best use they can of DTIC's resources. The Army procedures for
. . . input into DTIC databases are described in Army Regulation

70-9. . . . . The problem seems to be just how effectively the provisions of Army Regulation 70-9 are being implemented out in the different labs and project managers . . . vary quite a bit. There are a number of things that the Army, as one Service, ... the procedures. Probably the biggest is to ensure that they put their reports in because we found out that the major users of Army . . . to DTIC . . .are Army labs. The research labs or the chemical R&D centers or the avionics labs or whatever are the ones who use the reports they put in. The ones who are good about putting those reports in are the ones who are realizing . . . Part of my study, which was done for AMC, by the way, not . . DTIC. The recommendation was to try and get more intensified R&D data . . .

Comment -- cannot be heard

Mr. Lewis

Let me ask Bob Chaillet if he might want to make a few comments on that. He is certainly familiar with the Army system and the work units, and who is writing them, and he has a lot more visibility now on who's not doing it.

Mr. Chaillet

We did a study two years ago . . . and we got about 450 responses to the questionnaire from different Army laboratories and individuals. Part of what you said was true. People were using the product of the Defense Technical Information Center, but they weren't aware of the fact that the Defense Technical Information Center even existed. . . . . Another thing that occurred, something like 30% of the scientists and engineers said they don't use the 1498 because they're out of date. The information was . . . because it was not current. About the same number of . . . said they won't fill in the 1498. One group said they won't fill them in and the same group was saying they won't fill them in because they're no good. What can you do? .. . .

Question

Is the answer to the question then that there is no substitute for the 1498, or is the answer to the question we have not investigated whether there is a substitute?

Mr. Chaillet

There is no substitute for the 1498.

Mr. Thompson

Unfortunately, there is no direct substitute for the 1498. One of the things we're trying to do is change the data requirements on a 1498 to make them track more closely to the pieces of paper that are available. The original 1498 was designed by a staff person in the old ODDR&E office as a pre-summarized,

specially-packaged -- the data elements weren't the kinds of things that were immediately available to people. They had to invent them literally. So we're trying to change that. In the program summary area, the attempt has been made to use existing documents. The 1634 was a required document. It wasn't originally meant for database input, but it was there and so we tried to use it. The same with the RD-5. It was a form, or a format, really, that was required by the Comptroller. Again, the PEDS is the same area. A real problem in terms of the PEDS-type document is getting uniformity of the input and policy on what we're allowed to do with them from the Services. As I mentioned before, the Army has been very cooperative in giving us the RD-5 and promising to give the PEDS data to us on tape directly out of their Army system. The Navy, on the other hand, is particularly intransigent on the issue. The Air Force is somewhere in between. Technical reports are much the same way. We're not getting a lot of technical reports. The IG audit report said we're only getting 50% of them or 60%, somewhere around in there. Again, the problem is in many instances, the publication of the technical report is kind of an add-on thing that takes place after the effort is over. The principal investigator has lost his interest in the topic because it's over and he's doing something else. The sponsor has already been satisfied -- he got what he wanted out of it. So the final documentation in the form of a formal technical report frequently gets put off forever, if not eliminated. What we're looking at is a way to get at what is published. One of the reasons why there are fewer technical reports available is a lot of them are going underground or they're being produced in much less formal ways. Frankly, what we have to do is figure out a mechanism to get at that stuff.

Comment

I have a couple of observations. I know there was a time when NTIS was considered to be vital and we used it much moreso than we do today. However, in an effort to try and cut our costs of finding out information and going off on tangents, we end up going to the hallowed halls and going to the Pentagon, going to the customer and to the laboratories to get better, complete information. Unless DTIC covers three specific areas -- that's completeness, timeliness, and accuracy of the information -- there's a concern of those that are here (and I've heard this the last couple of days) that DTIC will go the same way as NTIS. It will be a tool . . . . important tool with respect to determining what's happening. What checks and balances to make sure first of all that the information is . . . and is accurate? What's to keep us in industry from going off on a tangent chasing these particular golden rainbows if the information that was inputted was incorrect in the first place? The question is what do you do first of all to determine the information that's being inputted is correct and accurate and timely?

Mr. Thompson

I guess the blunt answer to your question is not enough.

One advantage of trying to get data like the planning data we're talking about on tape directly from the source is that it's presumed to be good. Working with work unit input, we have no way of confirming whether the information is correct. In a database like that, the only real chance you have is the use of the data. If someone uses it and tells us it's wrong. Essentially what the Colonel was asking before - - what do we do if somebody says, "This data is wrong." Unfortunately, we're in the opposite cycle. People aren't inputting because they claim it's not useful and they don't use it because there isn't enough input. This gets back to the enforcement mechanism. We are working on improving our systems so that we can do a better job of quality control on the stuff we're inputting. When we get stuff in hard copy or when we actually input the citation of a report or something like that, we can do a better job of quality control of the stuff we're inputting. We don't have any really effective way of quality controlling the stuff that comes in externally already in machine-readable form. I don't know the answer to that.

Comment

I guess our purpose this morning is to determine what we can do to enhance the . . . and to improve the system so that it can be a more usable tool.

Mr. Lewis

Chuck will mention a few things. I'd like to mention just one small step as the first audit check. We are finding there's a problem with the in-house Army work units. Not the contractor work units, the in-house Army work units. About 80% or more of the ones that we've looked at -- and we're looking at every single one in the Army -- have no audit trail, no reference to a technical report in the TR file. On the other hand, in contractor land, about 85% of them do. So there is a problem with in-house work units. I think part of the problem stems from the fact that there is no contract number that's a searchable field in the work unit and the TR report for the in-house stuff, and there should be some kind of a system set up, and I think whatever it is that we're starting we want to look at that. We also have the first audit check on are there spelling errors or just inaccuracies, is there a name left out for the responsible person? We're trying to pick that up and feed that back to the Army organizations in the study we're doing now.

Comment

I'd like to comment if I may on what Fred just said about the lack of in-house technical reports. There really is not a lack of in-house technical reports. The problem is one of scientists and engineers, primarily the scientists, with the report. They want to get that report published in one of the technical journals, one of the professional journals. There's a lag of anywhere from 18 to 24 months if you want to get an article published in those journals.

If you publish it as a technical report and submit it to DTIC, the
journal will not . . . publish the article. . . . .   So we're
in a real quandry here. When the journal does publish . . ., the
laboratories do get reprints of it, they slap a TR cover on it, and
then they send it to DTIC. There are an awful lot of journal
articles in DTIC . . . but you're looking at 18 to 24 months from
the time your work is finished and the report is done before it gets
in there. That's one of the reasons.

Dr. Chatlynne

I'd like to mention a few observations that I've had on the
1498s. About a year ago we got tasked by AMC to tell them what our
checks and balances were. I called the new LABCOM laboratories and
according to them, it's perfect. Obviously, it isn't. Areas where
we are making progress, for instance, every small business innova-
tion research award we are aware of that and as a program manager
in that area I can task each person who is a COTR or Contract
Officer's Technical Representative on an SBIR program to issue a
1498, to prepare one and submit it. In the area of in-house work,
for instance, a lot of the laboratories prepare a single document
that describes all of their ILIR work and that never goes anywhere.
So clearly, that has to go to DTIC. But the problem with that is
that it covers everything that they're doing. It isn't broken out
into the separate topics.

Mr. Thompson

I'd just add one more thing. The mechanism that is built into
the existing regulation is that each work unit record is supposed to
be reviewed and updated at least once every 12 months. Obviously,
that doesn't work. We can monitor whether the records have been
updated at least once every 12 months, but we can't monitor whether
the changes made to them really enhance the accuracy of the record.

Comment -- cannot be heard

Mr. Thompson

I agree with what you say. It's doable, but it gets back to
identifying who the true pressure points are and getting them to
respond.

Comment

. . . . . . We should be working from the bottom up to . . .
the productivity and while we have a mechanism . . . that allows
all these things to happen on an intellectual level, they really
won't happen on a . . . level. What we have to do is go back to
the top and say, "We've got these things in place. We've got pro-
grams but they're not being properly monitored." . . . . . I think
some of these things that we're talking about . . . will fall out
. . .   There are two approaches to make something happen. One of

them is for us to report . . . "this is not happening," in a
constructive manner, and at the same time saying, "hey, you've got
something important . . . We'd like to try and use it. What do you
do to say 'I want this to happen?'" I know in our organization if
I find something doesn't work I'm going to try and push it from the
bottom and if I can't do it I go to the CEO and say, "I really want
this to happen," and if he wants it, it goes. . . .

Comment

I've been in this business for over 15 years on both sides, as
a user and a developer. I need DTIC and I have input to DTIC. I
think we're all the choir here and we need to find a preacher. The
point is, General Babers informs Mr. Zeigler .. . . he hasn't heard
anything about the difficulties we've had in the past two years. For
those people who would criticize DTIC or the Army, then they don't
really know where they're coming from. DTIC and the Army do a very
good job compared to some of the alternatives -- and I've got to
include the Air Force. The Navy . . . . If we don't do the squeak-
ing wheel -- and I agree with the gentleman. As I say, we finally
got to the point. There's no question people have done a lot of
good work.

First question. Where does this report that's going to go out
in six weeks go? Who gets it?

Mr. Lewis

We are actively looking at distribution lists completely outside
of the members who attended because there's an awful lot that have
something to do with the input process and this whole problem that
really should have been here, but since the first time we weren't
able to get them. We want to carefully hand-pick -- and that's one
of the projects in our group. We are going to prepare after this
a very short 2-4 page action item with not too many action items on
it, and we will then send that to a lot of the people that aren't
here.

Comment

I recommend that . . . . we don't beat around the bush, that
DTIC, as I say again has done a good job, cost factor is not very
great. We need to admit that. And that General Miley, under the
heading of the President of the American Defense Preparedness Asso-
ciation, get the interest of senior officials because my recommenda-
tion to my company is going to be -- we do 70% of our business with
the Navy -- if things don't get better we're going to have to make
a squeak. A big squeak.

Comment

A quick point. One way to get a . . . down approach and
directive on this -- and I think it is going to take a top down
push -- is to do exactly what they've been saying all along. Your

presentation was an excellent presentation identifying productivity
on the industry side. Beautiful. However, there's a counterpart
to that and I didn't quite see that in your presentation. It's also
productivity for the Services because each one of those hours that
that industry individual is down beating on the doors, he's also
taking up DoD's government time, so there's a productivity enhance-
ment if a top down push can come from DoD to enhance DTIC. Then it
also is a credible approach and gives the credibility to the Air
Force, Navy, and the Army to do this. My point is you have to have
some basis to go in and get a top down push. I think productivity
is one of your levers.

Mr. Lewis

You're exactly right and this is something that General Nelson
and the Air Force asked for and we didn't have too many good
examples. I think it's something that the Service management has
a right to ask. What's in it for me? What will it do for me?
There's an awful lot of that. We ought to figure out a way to get
better information. One of the new tasks that we think is necessary
is to have a common collection point for case histories of cost ef-
fectiveness within the military as well as industry. And we need
more of that. We need an awful lot more of that. Not only would
this help the productivity, but I can cite examples in the Space
Division where the work units have got remarkably worse from what
they used to be. They used to have a good person working it and now
they've got new people and they're brand new and have to be retrained.
There was one case where five Ph.Ds in one SDI project at Albuquerque
left, went to industry, and the new guys have no corporate memory
because there isn't a good data base with all the program element,
project tasks, and work units available there, so they're going to
screw up industry's productivity for a couple of years while they
learn, or whatever the time period is. There's a tremendous produc-
tivity benefit, but we haven't identified it. It's hidden, it's not
available, it's not readily apparent to the people that are manag-
ing it. If it were they probably would give a few more bucks to it.

Comment

The bottom line is we in industry are saying we are not satis-
fied with the accuracy, completeness, timeliness of DTIC data.

Mr. Lewis

Okay. We have time for one more question and then we're going
to break.

Comment

I don't have a question; it's a suggestion of something you
ought to do. Having been a writer and user of 1498s, I can tell you
the first thing you have to do is make a . . . of the guy who's
doing the work. A guy who you expect to write them and put good
data in them does not think they are good data when he writes them

because they are meaningless to him. If they don't talk to him in terms of the work unit he's doing . . . .

Mr. Thompson

That is the point I tried to make.

Comment

The second suggestion I have for you, if you want it in the system you should get DTIC to be the agent that submits the PEDS for DRE. . . . and the Service is going to make damned sure it's right.

Mr. Lewis

Okay. Now we'll take a break for lunch. I understand that General Babers will join us for the wrap-up after lunch.

WORKING GROUP REPORTS

Mr. Saunders

DTIC has just finished printing a new user's guide on use of the
information services at DTIC, and that is available. If you would
like a copy of that, drop your card off at the registration desk
with a note on the back of it that you want the new user's guide.

Also, Ernie Deadwyler just mentioned to me that they're look-
ing for active members in the RADPIM -- the R&D Planning Information
Management group of ADPA. If anyone is interested in helping in this
effort, please see Ernie Deadwyler.

I have the pleasure of starting the afternoon reports. The
first working group report will be given by Ms. Lucille McClure. I
don't know if you know Lucille, but she's a Market Researcher for
Martin Marietta Aerospace. She also has quite a few things here on
her bio sketch. It's very impressive. I can't read them all to you
but she is an adjunct professor at Florida Southern College, and
has many, many activities and awards. At this time I'd like to in-
troduce Lucille McClure.

Ms. McClure

On our workshop for eliminating barriers to communication of
defense R&D planning information, I was impressed. I thought that
it provided the forum for you to discuss the differences, whether
there is an adversarial relationship emerging or whether it was
perceived. It gave you a chance to voice your opinions.

A couple of things came out of our workshop which I am pleased
with. One is that we are recommending that RADPIM sponsor a DoD
directory of information centers. Also, a guide to R&D planning
information. That would be two different directories that our group
would sponsor. The third thing that I'm requesting -- you know,
when you have a chance and they ask you what you want and what you
recommend, you always recommend a couple of things that you think
are going to be easy and then you come up with something for the
other side of the house which is next to impossible. My "impossible"
recommendation to the government side is that they put the RD-5s in
Tri-Service in October unsanitized.

Thank you.

Mr. Saunders

Our next working group report will be from the B session.
That's improving availability and utilization of defense R&D plan-
ning information. Mr. Fred Lewis from Hughes Aircraft will be the
speaker on that. Fred, of course, is with the Marketing Research
of Hughes. His experience is he's currently Manager of Business

Planning, Radar Systems Group, Hughes Aircraft Company. He's a member of the National Championship Basketball Team -- I thought that was very impressive. I'd like to now introduce Fred Lewis.

Mr. Lewis

One of the things that we're hoping to do with our new section in ADPA is to have it act as a catalyst. We're tired of words. We really are tired of words. We want action. We want to figure out a way to finally do something. So our projects, our tasks that we hope to undertake will be specifically oriented to get something done. For example, we're using the Army as our first guinea pig, a prototype, the showcase to try to put some leverage on the other Services. In fact, the other Services have already agreed to do the same thing. We're taking one database at a time. We're starting with the work units. We are looking at every single work unit that the Army has, and we're going to see if they're any good or not. The ones that aren't any good, we're going to try to pinpoint where they aren't good, and the Army suggested a good idea. We have on the User Council that represents 800 users of the DTIC terminal, the military and industry, a person who is responsible for the two management databases. That happens to be my terminal operator, Sherril Hisaw. Sherril is going to write a letter and enclose a copy of a poorly-written 1498 and send it to the boss of the person who's doing it, with a nice letter saying the computer won't accept these misspellings -- you can't see it, we can't see it, nobody gets any good out of this, please consider doing a better job, or whatever the words. We want to do this on a continuing basis. We want to get feedback in a specific sense that will effect some change so we'll get more quality.

This is a result of an audit that we're starting and that we hope DTIC will pick up, and they've already agreed to, where they in fact will look at them and when there isn't a trailer, a reference to a technical report, we'll figure out a system to do that. Initially, our beginnings of the findings were 80% of the problems are in-house, Army. Not the contractor work units, it's the in-house. So we can figure out a way to solve that. But we want to tailor-make the outcome into specific actions. We're trying to do that. It's hard sometimes. But we will have specific projects that we work on.

In our workshop we had a lot of debate and energetic interaction. I was pleased with the audience. About 80% of it was focused on DTIC -- why don't you go out and try to figure out a way to get more input; why don't you be more active rather than the Services. Do it once, do it right, do it for all the Services, give them some help. Go get them and check them and make them better quality, that kind of thing.   There was a lot of interest in that idea. That's one of the items we had.

The number one for our workshop is to put the PEDS on line, classified, and maybe have DTIC the funnel point. Have the Services submit to DTIC and let them put them on line, make them

available, totally classified to all the military folks, on line
through their system, and then also to the . . .   I personally
feel it's pretty much a waste of time to sanitize the PEDS. You
can later do that for special distribution if you want to. DTIC
now prints 300-400 hard copies of the PEDS. If we had them on line,
they might not be required to do that work. We could get our
people looking at them on line. It's a lot easier to have the com-
puter search summary data than it is to go through 3000 pages
manually. That's one idea.

We want to try to see if we can't somehow put some teeth into
the regulations, like in the Army AR70-9, to have the responsibility
for inputting to the work unit database. We want to have it as a
matter of the performance appraisal, this job. It is not an option.
They have to do it. This is what we expect. Not only do the work,
write it up, a decent description, get it on line so people will
know what's going on. So whatever the regulations are in the other
Services, we want to look at them. Do we have to rewrite them?
Put a couple of small sentences, administrative changes. Not a big
deal, but get some more teeth in the process and put more disci-
pline in it.

We want to try to set up a means of collecting a file of the
cost effectiveness and the productivity successes -- in the mili-
tary, in DTIC, in universities, anybody that uses the information
system. So that will be a new project that we will be working on
in our committee. We haven't got that organized yet. We planned
to do that anyway, but it was suggested that we need more informa-
tion. For example, General Nelson said "what's in it for me if I
get the Air Force to do better inputting?" Well, he should know.
We should try to figure that out and we ought to have the military
people looking at how can we gain some productivity by doing more
on-line searching, for example. Or getting better hard copy data
into the TILOs and the Tri-Service shops.

We want to look at revising the format of the 1498 as a longer
range job. It's probably already a part of the new work unit look,
but there were some suggestions that it's difficult for the guy
doing the work to fill it out. So we may take a look at the format
of that and perhaps later on it can be improved.

We also want to explore where are the leverage points for
executive level, top down involvement, both in industry and the
military. One of the things that I personally am very pleased
about the conference is that we had a pretty high level executive.
I couldn't get my own executive at that level to come to this
thing, but another company was successful in doing that. He
stayed for the whole time and I think his eyes were opened as to
a problem here that prior to this had been hidden and not quite
in focus for him. So we want to try to establish the leverage
points for that.

We also need DTIC to look at establishing procedures to improve and check the completeness, timeliness, and accuracy of DTIC data in all databases. Put more emphasis on that all the way along the line.

Again, number one, more important than anything else, get the planning database, the PED, totally complete -- don't take a part of it -- classify it and make it available in hard copy form to the planning shops and on line to DTIC.

Mr. Saunders

At this time I'd like to introduce Dr. Leo Young who will give us some closing remarks on the conference. I think it's very appropriate, since his office, the Under Secretary of Defense for Research and Engineering, is the co-sponsor of this seminar today. Dr. Young.

Dr. Young

Thank you, John. First let me say that I've been very impressed by the enthusiasm shown by people like Fred and Lucille and Ernie and many of you in organizing this, and the sincerity with which you've approached the problem. Secondly, I'm very impressed with the very good turnout we've had here, and the responses we've had from people. I think that's a very good omen. The thing is we've generated some momentum here and we've got to keep it going.

I also want to thank General Babers, Dick Bruner, both of whom are in the audience, Kurt Molholm, and of course we've had attendance from other people -- Don Carter came from the Pentagon. Norm Augustine, a very senior company executive, came also. So it's been a very good meeting, I think. I hope you agree with me that we ought to have these things periodically and continue the conversation. It should be a lot easier doing so under ADPA sponsorship. The idea of forming the committee under ADPA, I think, is a great one and will provide us a home base and make it easier to keep this thing going.

I find one mistake that people often make when they come to us in the government is they will come to us with a shopping list or complaints or whatever you want to call it. And they usually are 99% correct. There are all kinds of things wrong. They will present us with a list and say, "these things are wrong; now you go fix it for us." It isn't that simple. If one of the Services, which shall remain unnamed, is a little bit tardy in providing inputs, it is not that easy for me to go after them and say, "look, the other two Services are doing this." They will give me lots of good reasons -- and by the way, some of them are genuine good reasons -- why they are different or why it can't be done and so on. It is often difficult to get positive, constructive alternatives, but it's much easier to be a naysayer than to say, "well,

this doesn't make sense to us; our case is different, but we will do something else."

Very often we tend to get the support internally that depends on the kind of support you get or manage to generate externally. In other words, if you generate some maybe anecdotal information that shows that there indeed have been dollar savings that are signifi- cant -- and I'm sure you can find those stories -- and if you can get those to the attention first of all of your own executives in your own companies, and if you convince them that this is important, and if they, when they get together with the senior people in the Pentagon, bring this thing up and say, "look, the system is good but it could be a lot better," that will help me to do my job. So to some extent I'm turning around and throwing it back at you. I need your support just as much as you need mine. I'm willing, but I'm not always able, and you can make it much easier for me to turn this thing around. I think I can speak for General Babers and Dick Bruner and the rest. They are equally dedicated to doing a good job as far as they're able, but we need some kind of support at all levels from the outside, senior as well as at the working level.

I agree with just about everything that Lucille and Fred said. I think we are entering a new electronic age and we've got to make use of it. Perhaps the number one thing on my list, also, will be to put in the PEDS electronically so that you can have them just about as fast as they go to Congress. Right now they're in hard copy and it's very hard to make the extra copies on time. We have a deadline with Congress; we respond to Congress. We don't neces- sarily respond to you with the same alacrity that we respond to Congress, and that's a fact. You may get the same information three months later or six months later. If it were in electronic form, I see no reason why you can't get it at the same time. So perhaps that's the thing to concentrate on because the technology is here.

The completeness of the database -- this is the PEDS. Now, the PEDS are complete almost by definition because we respond to Con- gress, so the machinery exists and we can take advantage of it. The biggest advantage we can take of it, as I said, is the elec- tronic form. At lower levels, at the work unit level, as opposed to the major program element and project level, the 1498s -- the biggest problem we have, I believe and I think a lot of people agree with me -- is that they're not complete. I used to work on the bench. I used to do searches in DTIC and I used to get a lot of useful information back. My biggest problem was that I knew it wasn't complete. When I looked for something, I had a certain basic information and I would check what I got back by what I knew, and there were things missing, major, important pieces missing. People are not putting in all that they should be putting in. It's very hard to make it happen. I also worked on the bench and I also put in 1498s and I also was tardy. The thing is, if you didn't put them in, nothing much happened to you. I would have to be reminded several times and eventually they would go in. Somehow we need to

bring this to the attention of top management and somehow there needs
to be a reward (and maybe a penalty) system for putting or not put-
ting these things in. It probably needs to be written in the job
description, in the appraisal that we do of the entire lab, how com-
plete are their inputs.

. . . . Who should do the auditing? Should it be the IG? . . .
should it be . . ., so to speak, and check against things which they
know exist. Are they in the database? I don't know which way to
do it, but as you trace it backwards, you need to first have the in-
formation, do some auditing; second, you need to have a reward and
penalty system, and bring it to the attention of the people who have
the power to change things. In a laboratory, essentially the tech-
nical director has the power to do it. Don't do it for him. Just
simply make sure it happens. Task him with getting it done, and it
may be done differently in different labs. Somehow we need to have
top attention at both company level and internally in DoD that this
is an important thing.

Okay, what next? Fred and Lucille have given us what amounts
to a shopping list. It's been a very brief list of things like PEDS
in electronic form, complete databases, evidence that these things
save dollars, things of that kind. But there's still work to be
done. I hope that this committee, the RADPIM Committee of ADPA, I
hope they will continue their work and I hope they will follow up
and continue the conversation with us. It's not sufficient to
simply throw this at me and say go do it electronically, go do it
this way or the other. You ought to monitor whether I'm doing my
job; I ought to tell you I've got problems and you can help me. So
I will need some follow-up from you. I would like to see something
on paper, some recommendations, a list of things to be done and
maybe how they could be done based on what you've just heard us say
this afternoon. I'm sure that Ernie and the rest of you would like
to have volunteers to work on the new committee, and any volunteers
would, I'm sure, be welcome and can come and see Ernie or, for that
matter, Fred or Lucille or any of the people who have now been
active.

I would like to declare this workshop a success. I hope you
will agree with me. I think there's a lot more work to be done.
I think there's no question that those of us who have attended here
are very willing to do something about it, but it doesn't just hap-
pen because you have good intentions. You need to enlist the sup-
port of a lot more people and in that way I think we will eventually
get there. It's a slow process, but we will get there and I am con-
fident that we will.

At this point, let me ask if General Babers or Dick Bruner
would like to say a few words.

General Babers

I didn't come here to speak. . . . . Again, I can tell you
that this is very important. I'm absolutely convinced that we can

save the government money and save your firms money if we build
databases . . .   Absolutely convinced. And as important as that
is, it's not as important as . . . that are occupying top manage-
ment's opinion, either in government or industry. If we think it's
important enough, we're going to surface this. We're going to get
it up there. I have a meeting with Dr. Hicks scheduled for March 4,
and among the things I talk about is going to be the frustrations
as you see them, and I'll talk from my opinion.   . . . if you feel
it's more important than the attention it's being given within your
firm, I think you've got to go the extra mile. If you think it's
more important than the attention it's getting in the government,
it seems to me entirely . . . that the same people who are walking
all over the Pentagon and Congress, when they're talking to the
leadership in the Defense Department . . . to DTIC and technical
information. . . . .   By no means am I trying to promote anything
in terms of an adversarial relationship between us.   . . . very
positive manner .. . opportunities to save money and to perform our
management responsibilities in a . . . manner. I don't run from my
responsibility. I'm responsible for the lights and water and for
. . . the personnel . . .   I've given my assurance -- absolute,
total assurance -- if we work out this in response to what has come
up from these suggestions, I'll put an MBO program together and I
commit to use it on a monthly basis. Kurt Molholm will be reporting
to me, as will Mr. Dick Bruner. I commit to you that we're going
to be much more . . . in going out and working with the Services
and Leo Young. I'm going to become intolerable at his level and his
boss's level unless action is forthcoming in recognition of this
problem, and I commit myself to you that we'll get a report back to
you through whatever . . . ., either from DTIC in some sort of user
letter or through the ADPA and their distribution.

    I appreciate the opportunity to have been here. I wish I
could have stayed full time.

Mr. Saunders

    Before we close the session, I think a few words of thanks
are in order. I probably had the easiest job of all because of
some gentlemen like Ernie Deadwyler and Fred Lewis and the steering
committee that worked so very hard to put this together, and
Captain Nelson Jackson of ADPA, who spent a lot of his time involved
in this. Since we're still way ahead of schedule, we do have time
to hear from people here at the seminar, after you've had time to
absorb some of this, so anybody that would like to comment, please
do so.   Okay, but you're not off the hook yet. In the proceedings,
which will be out in about six weeks, we're going to put a mail-
back page and on that page we solicit your comments concerning this
seminar, future seminars, and any suggestions you have, and also,
anybody that you didn't see here that you perhaps would like to have
seen here, please give that name to us so we can put them on the
mailing list.

    Thank you very much. The seminar is closed.

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